.5
94

The Physiotherapy Review

Vol. XII No. 1

Table of Contents

	Page
Future Possibilities of Physiotherapy in Relation to Orthopedics. *Walter A. Hoyt, M.D.*	2
Fractures in the Elbow. *W. B. Carrell, M.D.*	5
Sinus Disease of Childhood. *John G. McLaurin, M.D., F.A.C.S.*	8
Varicose Veins. *Kathryn Buckner, M.D.*	13
The Role of Physiotherapy in Disabilities of the Feet. *Rudolph S. Reich, M.D. F.A.C.S.*	16
A Case of Post Influenzal Myelitis. *Beatrice Woodcock*	19
The Correlation Between the Physiotherapy and Radiographic Departments in an Orthopedic Clinic. *Dora E. Fehlis, R.T.* and *Miriam Van Tassel*	20
Editorials	21
The Crippled Child	23
1. The Handicapped Child as a Camper. *Leah Thomas*	
2. The Crippled Child in Texas. *J. Moreland*	
3. Child Cripples Get Full Course at Morton High. *Ruth De Young*	
4. A Visit to Vanforeanstalten in Gothenburg, Sweden. *Emmy Kylin*	
5. Crippling Is Largely Preventable.	
6. Progress in the Education of Crippled Children. *Harry H. Howett*	
7. The Crippled Child's Bill of Rights.	
Abstracts. *John S. Coulter, M.D.*	35
Index to Current Literature. *Charlotte Merrison*	45

Published Bi-Monthly By

THE AMERICAN PHYSIOTHERAPY ASSOCIATION

JANUARY-FEBRUARY, 1932

Cleveland and Texas Number

Chapter Directory

AMERICAN PHYSIOTHERAPY ASSOCIATION, Cleveland Chapter
President, Mrs. Margaret Cleveland, Lakeside Hospital.
Secretary, Miss Martha Kearney, 1803 Valentine Ave.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Chicago Chapter
President, Miss Viola Schneberger, 257 Northwood Road, Riverside, Ill.
Secretary, Miss Eleanor H. Farrell, 6026 S. Bishop St.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Minnesota Chapter
President, Miss Marian Denny, Gillette State Hospital, St. Paul.
Secretary, Miss Helen Foss, 1826 La Salle Ave., Minneapolis.

AMERICAN PHYSIOTHERAPY ASSOCIATION, New York Chapter, Inc.
President, Miss Mary Hibbler, 345 East 68th St., New York City.
Secretary, Miss Kathleen King, 722 W. 168th St., New York City.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Northern California Chapter
President, Miss Julia Tuggle, 501 Taylor St., San Francisco.
Secretary, Mr. Carl Walgren, Marine Hospital, Presidio, San Francisco.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Southern California Chapter
President, Miss Jefferson Brown, 342 Euclid Ave., Long Beach.
Secretary, Miss Emma Hansen, 1518 S. St. Andrews Pl., Los Angeles.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Oregon Chapter
President, Miss Cora Howes, D. S., Veterans Hospital, Portland.
Secretary, Miss Miriam R. Ewing, 660 Knott St., Portland.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Rhode Island Chapter
President, Mr. Howard Coughlin, 45 Dartmouth Ave., Providence.
Secretary, Miss Helen L. Babcock, 32 Wesleyan Ave., Providence.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Wisconsin Chapter
President, Miss Mildred Elson, 542 Jackson St., Milwaukee.
Secretary, Miss Martha E. Lewis, 125 North 5th St., Madison.

AMERICAN PHYSIOTHERAPY ASSOCIATION, District of Columbia Chapter
President, Miss Emma E. Vogel, Walter Reed Hospital.
Secretary, Miss Mary MacLean, Walter Reed Hospital.

MASSACHUSETTS PHYSIOTHERAPY ASSOCIATION, INC.
President, Miss Mary McMillan, 99 St. Paul St., Brookline.
Secretary, Miss Lucy Marshall, 1638 Commonwealth Ave., Boston.

PENNSYLVANIA PHYSIOTHERAPY ASSOCIATION, INC.
President, Miss Lucy Windle, 1916 Spruce St., Philadelphia.
Secretary, Miss Louise Jetter, 17 East Style St., Collingswood, N. J.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Washington Chapter
President, Karen Rynning, 8005 Pacific Ave., Tacoma.
Secretary, Ruth C. Babb, Tacoma General Hospital, Tacoma.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Michigan Chapter
President, Miss Anna L. Mulcahey, 280 Harmon Ave., Detroit.
Secretary, Miss Norma Graham, 25 East Palmer Ave., Detroit.

AMERICAN PHYSIOTHERAPY ASSOCIATION, New Jersey Chapter
President, Miss Jean Smith, 5 Berkeley Heights Park, Bloomfield.
Secretary, Mrs. Mary Louise Kelland, 18 North 20th St., East Orange, N. J.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Texas Chapter
President, Miss Ella M. George, 3519 Euclid Ave., Dallas.
Secretary, Miss Miriam Van Tassel, 828 Medical Arts Bldg., Dallas.

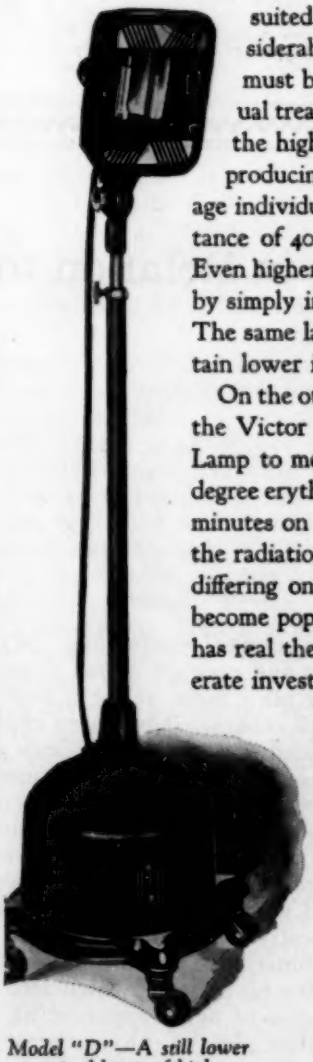
AMERICAN PHYSIOTHERAPY ASSOCIATION, Western New York Chapter
President, Miss Ida Rapin, Bryant St., Apt. 1-C, Buffalo.
Secretary, Miss Earnscliff Musgrove, 875 Lafayette Ave., Buffalo.

When Equipping for Ultraviolet Therapy

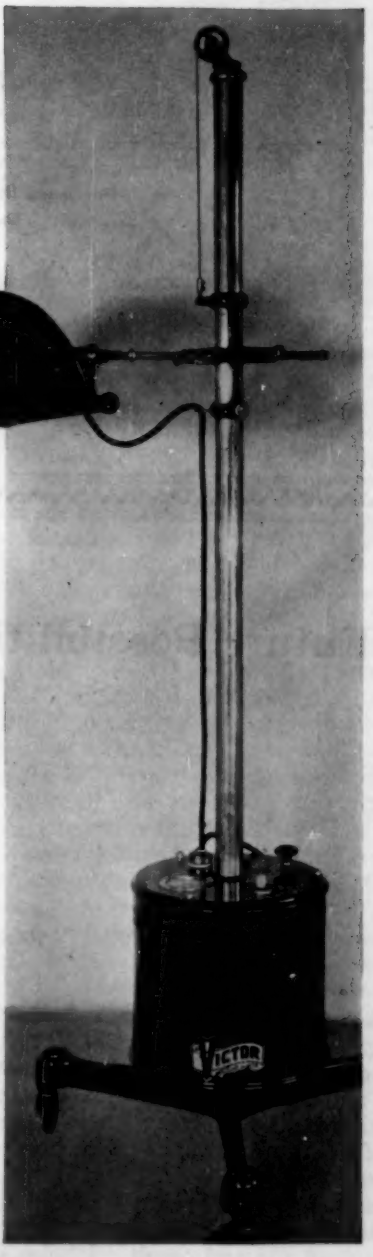
BEAR in mind that the mercury vapor arc quartz lamp is the richest source of ultraviolet energy known up to the present. Of all the artificial sources for ultraviolet the mercury arc produces by far the smallest amount of attendant heat (infra red); thus it is the instrument of choice where ultraviolet alone is desired, i. e., for the treatment of conditions in which heat is contra-indicated.

The nature of your practice will determine which of the fourteen models of Victor Mercury Vapor Quartz Lamps is best suited to your needs. If a considerable number of patients must be treated during the day, the individual treatment may be expedited by the use of the high intensity lamp, which is capable of producing a first degree erythema on an average individual in from 30 to 45 seconds, at a distance of 40 inches from burner to skin surface. Even higher intensities than this may be obtained by simply increasing the voltage to the burner. The same lamp may be adjusted so as to also obtain lower intensities when desired.

On the other hand, some physicians have found the Victor Model "D" Mercury Vapor Quartz Lamp to meet their needs ideally. With it, a first degree erythema is produced in approximately two minutes on an average individual. The quality of the radiation is the same as with the above lamp, differing only in intensity. Thus model "D" has become popular with many physicians, because it has real therapeutic merit and represents a moderate investment.



Model "D"—A still lower priced lamp of high efficiency.



Let us send you authentic clinical data on ultraviolet therapy, with detailed descriptions of Victor Quartz Lamps, both air-cooled and water-cooled types. No obligation.

Model "B"—A popular model at an attractive price. Many other models, both air-cooled and water-cooled, including combinations thereof, are available.

GENERAL ELECTRIC
X-RAY CORPORATION

2012 Jackson Boulevard Chicago, Ill., U. S. A.

FORMERLY VICTOR X-RAY CORPORATION

Join us in the General Electric program broadcast every Sunday afternoon over a nationwide N. B. C. network

VOLUME XII NUMBER 1

The Physiotherapy Review

JANUARY-FEBRUARY, 1932

PUBLISHED BI-MONTHLY BY THE AMERICAN PHYSIOTHERAPY ASSOCIATION

Publication Office: 404 N. Wesley Ave., Mount Morris, Ill.
Editorial Office: 21 Church St., Montclair, N. J.

Editor-in-Chief:
DOROTHEA M. BECK,
21 Church St., Montclair, N. J.

Entered as second-class matter Oct. 6, 1927, at the post office at Mount Morris, Ill., under the Act of Aug. 24, 1912.

General Manager:
GERTRUDE BEARD,
2449 S. Dearborn St., Chicago, Ill.

Address all correspondence for publication to the Editor.

Membership in the American Physiotherapy Association is five dollars a year, including two dollar subscription for THE PHYSIOTHERAPY REVIEW. Single copies 35 cents. Subscription for non-members to THE PHYSIOTHERAPY REVIEW $2.50 a year. Single copies 50 cents

Future Possibilities of Physiotherapy in Relation to Orthopedics

By Walter A. Hoyt, M. D.

Read Before the Cleveland Chapter A. P. A.

I must confess that I feel rather meek and humble in speaking to a group of physiotherapists. You have specialized in a rather small department of orthopedic surgery and we as doctors have learned a great deal from you and, as a matter of fact, have much more to learn. You occupy a very unique position between the patient and the doctor. The success of many a case is due often in a large measure to your efforts to keep a patient satisfied and contented until sufficient time has elapsed to see the end result. I have said before and wish to repeat, that I do not believe it is possible today for an orthopedic surgeon to be successful without a well organized clinic, headed and watched over by competent and loyal physiotherapists. You see the dissatisfied patient, you hear the surgeon criticised and sometimes correctly so, but with your tact and close relationship to the patient, you are able to do a great deal for the patient as well as the surgeon.

Physiotherapy has made great strides but, as we know it today, is not very old. I sometimes feel that it is still on probation. All phases of it as practiced, are not accepted by the medical profession. Many good men do not accept it and even go so far as to say that it is of no value at all. Some select a few cases as suitable and reject all others. It has been exploited by cults, chiropractors and osteopaths. Laymen are more or less enthusiastic because it is a visible method and they feel that something is being done, even though from a medical standpoint there are no real indications. I refer especially to many of the lights, electrical apparatus, etc. Now if physiotherapy is to survive, you as physiotherapists and we as doctors, must see that it is used where it is honestly indicated. It is not a panacea for all diseases but must have definite indications. Just as we have principles of surgery which tell us when we shall operate a case of acute appendicitis, so must we have definite principles of physiotherapy which tell us just what type of treatment shall be used in post-operative fractures, infantile paralysis or tuberculosis of the hip. We must keep this out of the hands of quacks and physicians over zealous to make money and use it only in the hands of trained workers on the

properly selected case and then (and this is the most important of all) you must get results. It is an exact science and not a mere laying on of hands.

You are all well informed about physiotherapy as it is today. Progressive medicine and its allied branches never stand still. It is then to be expected that there will be great changes in physiotherapy in the next few years. This will mean that you will have to keep constantly alert to all advances if you are to stay at the top of your profession. Let us then for a few minutes try to visualize and anticipate some of the possibilities in orthopedic surgery which may affect you.

Suppose for instance, that tomorrow someone were to announce and have substantiating proofs of the organism causing infantile paralysis and a method, such as antitoxin or toxin antitoxin for its cure or prevention. It seems rather fantastic to imagine just this, but it will come. Research work in this field is being carried out in practically every medical center. While the problem has not been solved, each year brings out very vital and interesting data which makes its study much easier. I refer especially to its pathology, its method of transmission and its various strains. Probably the most interesting developments in its study this year is the establishment of the fact that involvment of the central nervous system is preceded by a general systematic infection, involving the lymphatics and that the changes in the spinal cord are really a chemical fixation of the nerve cells. While all of these facts have not solved the problem, it opens up new methods of attack and will eventually lead us to its solution. If there were no new Infantile cases for a period of five to ten years, consider how it would affect your own daily work. This is really a negative development rather than a positive advancement, but is of great importance where over fifty per cent of some clinic work is Poliomyelitis. Should this not happen, what new developments can we think of in the treatment of Infantile as it is today?

Much research work has been carried out and is still going on with reference to muscles. Atrophy of muscles and bones so prevalent in Infantile, is of tremendous importance. Most of us believe that rest over a long period of time is a cardinal principle in the treatment of this disease. This rest is later further carried out by the use of braces and crutches. In other words, aren't we almost defeating our purpose of building up muscles by producing an atrophy of disuse? It has been rather conclusively shown that cases untreated are much less apt to result in bone shortenings but on the other hand, muscles do not fare so well. I believe that something must and will be worked out to cut down this atrophy but at the same time not use the muscles to point of fatigue. Muscle balance and pull and muscle dynamics in my opinion, will be worked out to a much more exact science than it is today. Efforts have been made to measure muscle power and balance but have not been practical. Until we are able to work this out, it will be difficult to understand and prevent some of these deformities that occur right under our care. I refer particularly to these conditions such as tilting of the pelvis, valgus deformities of the knees, the twisting or torsions of the long bones and above all the scoliosis so often associated with Infantile. The successful physiotherapist of the next ten years will be a better anatomist and will have to know more about the measurement of muscle power, balance and muscle dynamics.

What I have said about muscles, applies likewise to the subject of scoliosis other than from Infantile. Up to date I think that we can say the treatment of structural rotary scoliosis has been almost a complete failure. Possibly the operative treatment of these cases may take the problem out of your hands but as yet there is much to be desired in the results from operations. I do not wish to appear too pessimistic about scoliosis but I believe that the whole condition is much more complicated than we have been willing to admit. When one has examined the recently reconstructed back, showing the action of every muscle of the spine and how various types of rotation and curvature can be produced, one is impressed with the complexity of the problem and the unsoundness of some of our previous theories. Operative treatment I believe, will have much to do with solving the problem. Until that time you must carry on in the most intelligent way at your disposal. With a better understanding of the muscle balance of the spine and some of its derangements, your treatment will be more scientific and directed in the right line rather than so hit or miss as it is today.

Probably no branch of physiotherapy has made such strides as in the treatment of fractures. You are all familiar with what can be done today but so often, or rather usually, you are called upon to take over the treatment of a fracture when the bone is well healed and often it has been immobilized in a splint for weeks or months. I marvel at what you can do under these conditions. The principle in the treatment of most fractures is to immobilize the fractured bones until union has taken place before it is thought safe to start mobilization of the joints near by. More and more you are going to see and are seeing, massage and mobilization within a few days after fracture. You will be expected to have a good functional arm or leg at the same time that bony union has taken place instead of just starting your work. This will necessitate great advancement in orthopedic surgery and principles, so that there will be better methods of fixation and immobilization, at the same time leaving muscles and joints exposed for massage and manipulation and passive motion. For this reason it will be necessary for you to have an exact understanding of the individual case and work in a little closer relationship with the surgeon in charge, because you will be dealing more and more with fresh fractures. Too often the fracture case is sent to the physiotherapist for treatment with no definite instructions or consultation with the surgeon. With the development of handling fractures early, it will be necessary for the physiotherapist to actually make rounds with the surgeon and see the patient together and outline a method of treatment. In no other way can fresh fractures be handled with physiotherapy.

I believe as time goes on, there will be a tendency for more and more forceful manipulation. I refer especially to more definite stretchings and possibly the use of mechanical devices such as is used in scoliosis. We have much to learn along these lines and there is possibly something that we could learn from the old bone setter and manipulators. I feel sure that there is one type of case that could be completely corrected by manipulation, with possibly better results than we sometimes now obtain. I refer to congenital club feet. If seen often enough in your clinics and started at birth, I am sure they can be completely corrected. Try this out on some case. We have treated a rather large number of congenital torticollis in very small children, in this manner, with some very excellent results.

More and more attention will be directed toward poor posture, its cause and prevention. I believe that there will be much study done in trying to work out the reflex effects of poor posture and conditions of the spine. There is no question but that many needless

abdominal operations have been performed because posture and back conditions have been ignored. The general surgeon is beginning to realize this and is sending more and more of these cases to you. They will be difficult cases to handle but many of them if properly treated, will show very satisfactory results.

I must say a word about electrotherapy and heliotherapy. Both of these branches have a big place in physiotherapy. Like all good things, they have been exploited and much abused. Probably the diathermy has been the greatest advance in the field of electricity, but it is not a cure-all for everything and is to be used to produce one thing mainly, internal heat. When you ask it to do more, you are asking the impossible. I look for better advancement in this type of apparatus and with it an extension of its present field. With the development of physics, I look for an apparatus that will quickly give this effect over a larger area but with better methods of definite localization.

Heliotherapy is here to stay but here the cardinal principles and indications must be observed. No branch of physiotherapy has been any more abused and improperly practiced than heliotherapy. Unless one is properly organized and has the correct equipment and personnel, it is absurd to attempt to even try it. It is impossible to go into the subject in this paper and discuss it to its fullest extent. We have been carrying out heliotherapy for the last fifteen years at the Children's Hospital of Akron and Springfield Lake Sanitorium, in a manner which I feel is ideal. In both of these institutions we use direct Sun radiation of the whole body, supplemented by multiple carbon arcs, capable of taking care of large numbers of patients at one time. Trained workers carry out efficiently this treatment with excellent results and the minimum danger of injury. The cases are selected very carefully and only conditions favorable for treatment are treated. Careful laboratory check, physical examinations and weighing, determine the advisability of continuing such treatments. These cases are accepted for treatments for long periods of time. Cases handled in such a way are greatly benefited by heliotherapy. With few exceptions, I do not feel that heliotherapy, in connection with orthopedics, is of much value, unless carried out in an institution over a long period of time and under conditions such as enumerated above. I am absolutely opposed to the promiscuous use of the small Sun lamps in the home or office unless most carefully supervised. In the future you will see more and more institutions organized and equipped to do heliotherapy scientifically.

These are some of the things that we must be thinking about and considering. I could name many more. Arthiritis may be taken away from you altogether. Spastic paralysis is an unknown factor and I have no idea what the future will be. Possibly our study of muscle dynamics will solve this problem. Pools for all types of physiotherapy are inevitable. All new hospitals will be equipped with one or more pools with varying temperatures and solutions. Elaborate apparatus and conveying devices will be installed to take the patient to and from the pools. Swimming and water physiotherapy is here to stay. It will undoubtedly be developed much more efficiently than at present and be used much more for other conditions such as fractures and post-operative cases. Without a pool and training, you as phyiotherapists will not be up to date in five years more. These things are not dreams at present but as you know, actually in use.

I could go on at great length trying to visualize something of the future but I am afraid that I am not a real prophet. The thought I would like to leave with you is that orthopedic surgery is advancing more rapidly than any other branch of surgery and is producing more current literature than any other branch of medicine. Physiotherapy is a big part of this branch. As one advances, the other must change, develop and come with it. You as physiotherapists must realize this and advance with it. If you are not alert, progressive and studious, you will soon be left by the wayside. By using these same qualities to advantage, you will make contributions to the progress of orthopedic surgery and physiotherapy.

426-8 Ohio Building, Akron, Ohio.

Fractures in the Elbow*

By W. B. Carrell, M.D., Dallas, Texas

REPRINT FROM THE SOUTHERN MEDICAL JOURNAL,
Journal of the Southern Medical Association Birmingham, Ala., September, 1931

Most physicians are familiar with what may be regarded as a fairly standardized method for treating fractures in the elbow, yet our results are not so good as in many other fractures, about which less is known regarding principles of treatment.

If one judges by the considerable number of deformities following elbow fractures, there is an apparent lack in appreciation of the relation of the bones in normal function, and less understanding of the mechanics of altered relations which affect function in the joint. The elbow joint is situated slightly in front of the long axis of the humerus in the adult and forward to a greater degree in children. Isidore Cohn has called attention to the value of accurate measurements for these changing positions, which serves to emphasize the importance of replacing the elbow in that relation required for the individual patient. In early life the joint is cartilaginous but at definite ages the various epiphyses appear and finally fuse, giving a different roentgenologic appearance during development. One should appreciate these anatomical variations in treating elbow injuries in children. It is unnecessary to keep an accurate chart because when films are made of the sound elbow for comparison every detail for the particular case is at hand.

*Clinic, General Clinical Session, Southern Medical Association, Twenty-fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

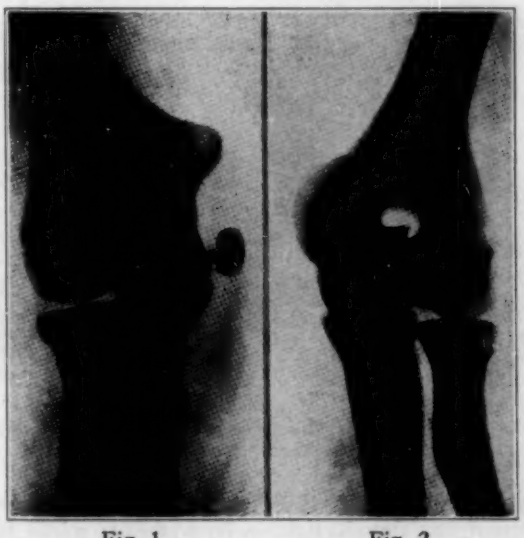


Fig. 1
Old slipped epiphysis.

Fig. 2
Same patient, normal elbow.

Fig. 1 is the elbow of a boy 17 with a football injury to the elbow. Swelling and tenderness over the medial epicondyle suggested a fractured or slipped epiphysis. Comparison of the normal elbow in *Fig. 2* shows the fused epiphysis, and such distortion in growth on the injured side that a diagnosis can be made of slipped epiphysis years earlier, and a recent minor injury. In proof of the diagnosis, the boy was completely well and playing football in two weeks.

Slipped epiphysis in children may occur in conjunction with fractures and with dislocation. One should study carefully this possible element of injury in all examinations, and in doing so, make roentgenograms of the opposite elbow in the same position. A fractured epicondyle in the adult can be removed,

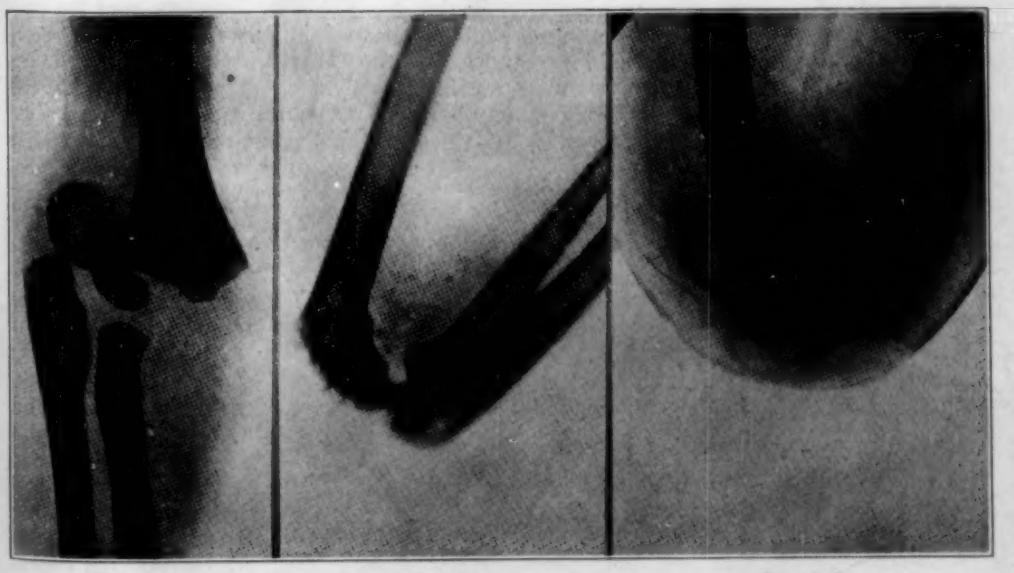


Fig. 3-A Fig. 3-B Fig. 3-C

A, Early reduction by manipulation. B, Over correction will distort carrying angle. C, immediate change will correct anterior position of caput.

when displaced widely, without serious impairment, but the loss of the epiphyses in children may result in arrested growth of the condyle and distortion in the carrying angle for the arm. Replacement is usually accomplished by direct manipulation of the fragment, assisted by flexing and extending the forearm. Fixation of the elbow in flexion should follow. Displacement of the medial epicondyle into the subluxated joint often produces ulnar nerve injury by dragging the nerve into a position where it becomes pinched when the dislocation is reduced. This complication was observed by Cotton several years ago, who advised removal of the fragment and freeing of the nerve.

Fracture of the lower end of the humerus, *Fig. 3*, may be through or above the condyles. Occurring generally in children, it may start anterior as a separation and extend upward and backward through the diaphysis as a fracture. Displacement of the lower fragment with the elbow and forearm is backward and upward *(Fig. 4)*.

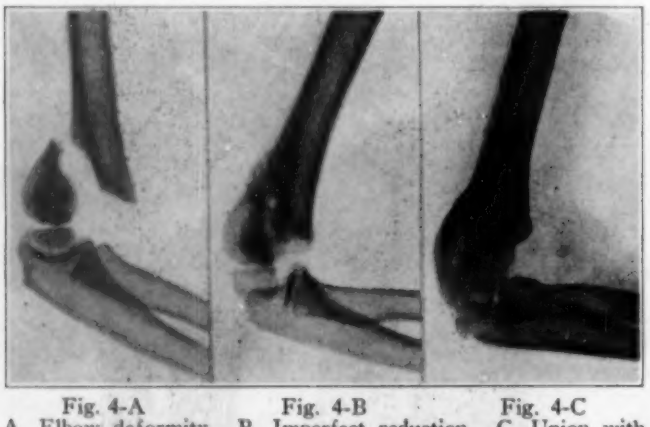


Fig. 4-A Fig. 4-B Fig. 4-C
A, Elbow deformity. B, Imperfect reduction. C, Union with faulty carrying angle, caput displaced backward.

The diagnosis of fractured elbow is generally made by the patient, but the physician who wishes to avoid future trouble will make a careful but painless study of the injured arm, and enlighten the parents regarding his findings. As in all fractures, before the tissues become infiltrated with hemorrhage and muscle contraction adds to the difficulties, early examination should be made and reduction carried out. The soft tissue damage may exceed the bone injury. The patient who finds loss of motion or sensation after two or three days or perhaps only when the splints are removed, will be prone to blame the physician, when probably the damage was due directly to the injury and was not discovered. The detection of nerve injury is very simple at first examination

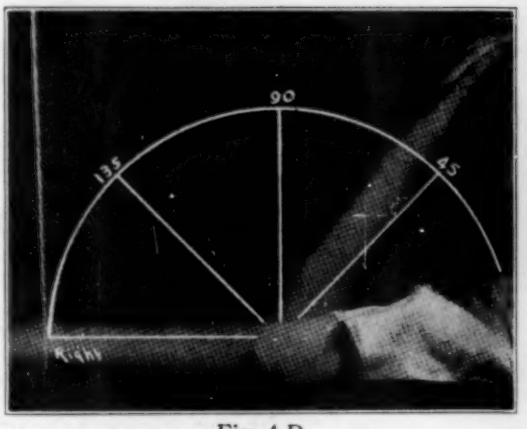


Fig. 4-D
D, Limited motion from bone block.

by a few tests of finger and hand action, involving the muscles under control of the three major nerves. If the patient has no sensory disturbance, and can flex and extend the hand and fingers, abduct and adduct the fingers, any nerve injury of consequence can be eliminated. On completion of the examination, which includes roentgenograms of the elbow in two planes and in many cases those of the other elbow, one is ready to reduce the fracture.

Reduction.—Complete relaxation is the first essential. A general anesthetic is given, or if one prefers, local infiltration of the hematoma between the fragments with 2 per cent novocain is most satisfactory. The forearm is extended *(Fig. 5)* and with one thumb against the lower fragment, the other hand makes traction while an assistant holds the shoulder and arm. The forearm is carried slowly into hyperextension, levering the fragment into anterior deformity, until the end engages, when slow steady flexion, the while maintaining traction, fixes the fragments into contact and normal alignment. In this acute flexion the forearm, pressing against the arm, is the anterior splint, and the triceps, taut and somewhat spreading over the condyles, make the posterior splint. *Fig. 6* shows the Jones position, and it appears that some have confused it with the full regime of reduction and fixation. A fracture above the condyle is not reduced by flexing the elbow, but after reduction acute flexion is the best position to hold it in. If there is resistance to full flexion, in the absence of considerable swelling of the soft parts, reduction has not been complete, and the manoeuvre should be repeated. Likewise, if there is only slight resistance, but the radial pulse is obliterated, reduction has not been well done. It is wise to carry the forearm snugly, without resistance, against the arm, then release 5 or 10 degrees and again test the radial pulse before final fixation. A pad or roll should not be placed at the bend of the elbow, but a flat piece of gauze will prevent chafing from skin contact.

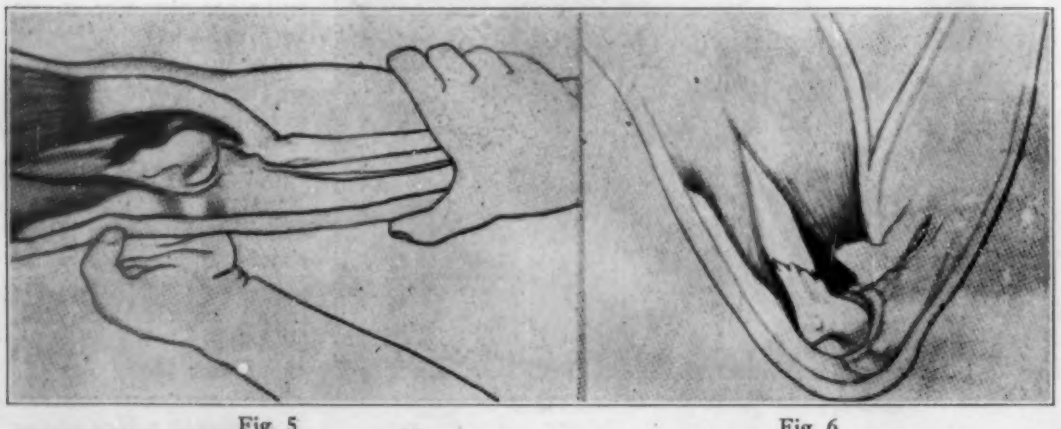


Fig. 5
Typical fracture lower end of humerus. Typical deformity practically corrected by hyperextension.

Fig. 6
Position of forearm for retention.

Retention.—If the condyles are separately broken, the forearm must be held in supination or semipronation as necessary to relax the muscles arising from the particular epicondyle. In supracondylar fractures, however, it has not affected our results,

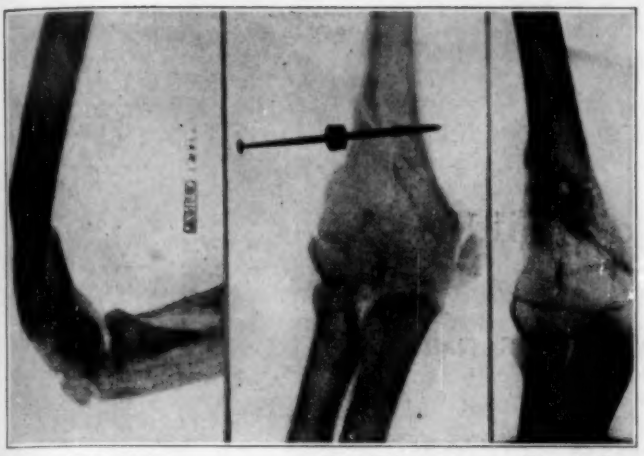


Fig. 7-A Fig. 7-B Fig. 7-C

A, Comminuted fracture extending into joint. B, Fixation with special screw. C, Same after eight weeks.

whether the forearm be placed in supination or mid-pronation. The Lund swathe is the most comfortable dressing, is easily applied and suited to most cases.

After-Treatment.—Many elbows are put up properly, but seriously damaged by injudicious care in convalescence. The elbow should remain quiet during the early vascular changes in the soft tissue and at the bone ends. After ten to fourteen days light active motion may be started over a short range from the acute flexion. If this does not provoke increased soreness at the elbow, it may be increased in 48 hours, and continued until, at the end of three weeks, the forearm may be carried in a sling and should have reached a 90-degree position. The sling may be discarded in five or six weeks. Favorable cases will have a full range of motion in six to ten weeks, but under the same care others will have considerable limitation for a number of months.

Role of Physiotherapy in Elbow Fractures.—With the modern tendency to electrify our offices, there is a strong disposition to overdo physical therapy measures. These fractures, like all others, will be hastened in recovery of complete function by judicious use of heat, proper massage and directional active motion. The heat, by baking or other means, is only preliminary to a gentle, skillful massage, which promotes absorption of exudates and stimulates healing. Following this treatment active motions are increasingly carried out. At no time, with children, are passive movements carried beyond their active range, nor should they be subjected to manipulations under an anesthetic.

The very common supracondylar fracture and a routine treatment suitable for it has been presented with considerable detail, but most elbow cases come within this group and we make them difficult by failure to follow simple rules of treatment.

Extensively comminuted fractures involving the joint surface, and compound fractures, offer problems for surgical judgment, but in general, require some plan of bed treatment with suspension and traction. In certain comminuted joint fractures and those involving the olecranon we have devised a staple and a compression screw which have proven of definite value. These are described in a paper now in publication, under the title of "Internal Removable Devices in Fractures" *(Figs. 7 and 8)*.

Any discussion of elbow fractures would be incomplete without reference to that serious and irreparable complication, Volkmann's contracture. Most of us have seen cases resulting directly from internal hemorrhage and pressure, where no splints were used, but the greater number are among those who did not get a good reduction, and flexion was obtained under great stress, cutting off the venous return with subsequent fibrosis in the muscles. The only satisfactory treatment is prevention. Reduce the fracture early, carefully and thoroughly, avoid too much flexion and watch the radial pulse. Do not hesitate to let the arm down, if there be undue swelling in fingers, pallor or cyanosis. Persistent pain after reduction of any fracture is indication for surgical observation. At a fracture clinic for Dr. Scudder in Dallas last year, we had seven boys under ten, standing in a row, exhibiting the deformity of Volkmann's contracture.

It was a lesson one cannot soon forget, and out of this experience this subject of fractures in the elbow has been discussed before you.

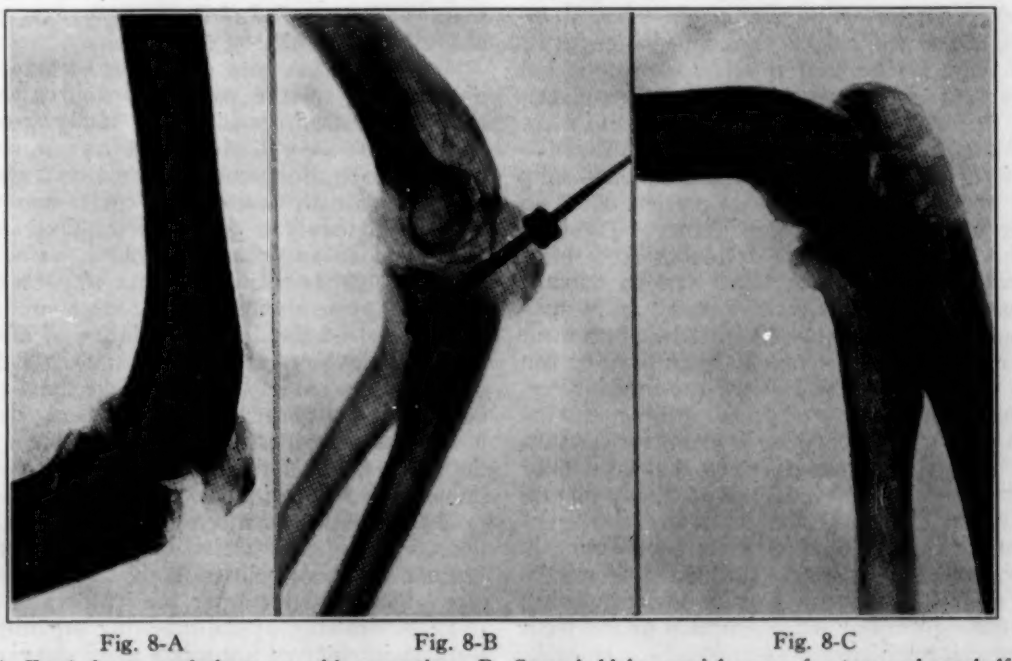


Fig. 8-A Fig. 8-B Fig. 8-C

A, Fresh fracture of olecranon with separation. B, Same held by special screw for two and one-half weeks. C, Same at six weeks. (Full range of motion at eight weeks.)

Sinus Disease of Childhood

By John G. McLaurin, M. D., F. A. C. S., Dallas, Texas

Read Before the Dallas, Southern Clinical Society

An accurate knowledge of the development and physiology of the sinuses is necessary for intelligent diagnosis and treatment of diseases that occur in them during childhood. Without a clear understanding of what the normal development of the sinuses should be at the different ages of childhood, it is extremely difficult to arrive at any accurate opinion of X-ray pictures taken at these ages and to properly interpret disease changes that are likely present. The sinuologist must know the normal before arriving at any intelligent conclusions as regards the abnormal.

The FRONTAL SINUS makes its earliest extension into the vertical portion of the frontal bone at the end of the second year. It grows rather slowly for the first few years and at the sixth year will measure only 8x4x6 m.m. It usually has a clinical significance at the age of five. There may be more than one frontal sinus on each side, and in other instances there may be a rudimentary development of either of them. Frontal sinuses are rarely infected during childhood and it is seldom ever necessary to operate on them for any diseased condition under twelve years of age.

The MAXILLARY SINUS is nearly always present at birth, and at that time it has a clinical significance. Its average size at birth is 8. m.m. long, 5 m.m. high, and 3½ m.m. wide, and during the first eight years it increases its height and width by 2 m.m. and its length by 3 m.m. each year. After that time its growth is not quite so rapid. At birth it rarely has an intimate relationship with the inferior meatus and it is therefore absolutely NECESSARY TO HAVE X-RAY PICTURES of it to determine its anatomical relationship as well as to show what pathology is present when an operation is to be done on it during infancy. The high position of the tooth buds of the deciduous teeth must be remembered and great care taken not to damage them if drainage of this sinus is attempted. In infancy its floor is usually at about the level of the attachment of the inferior turbinal, and if necessary an opening can be made into the cavity at the level of the inferior turbinal attachment and with care this opening can be enlarged with a rasp if the rasping is done forward instead of downward. To rasp forward the nasal floor would likely injure the tooth buds. If an X-ray picture does not show that the antral floor is as low as the inferior turbinal attachment then it becomes necessary to make an opening for drainage through the middle meatus. The floor of the antrum usually descends rather rapidly after the eighth year when eruption of the teeth has been fairly well completed.

The ETHMOIDAL CELLS are always quite well developed at birth and at that time are of clinical significance. At birth there is a marked variance in the size of the ethmoidal labyrinths, in fact, the anterior cells may be from 1 to 9 m.m. in length, 1 to 8 m.m. in height, and 1 to 6 m.m. in width with an average measurement of 5x2x2 m.m., while the posterior cells are 2 to 10 m.m. long, 2 to 8 m.m. high and 1.5 to 8 m.m. wide with an average measurement of 5x4x2 m.m. There are usually from 2 to 8 cells in the anterior group and from 1 to 7 in the posterior group. At five years the volume is increased over the volume at birth by 16 times in the anterior group and 14 times in the posterior group. In adult life the average measurements of the anterior group are 24 m.m. high, 23 m.m. long, and 1 m.m. wide or over 300 times the average volume at birth and 20 times the volume at 5 years; while the posterior group has an average measurement in adult life of 21 m.m. high, 21 m.m. long and 12 m.m. wide, or 120 times the average volume at birth and 9 times the volume at 5 years.

The SPHENOID SINUS is nearly always a distinct cell at birth, but has no clinical significance. It grows rather slowly the first three years, but at twelve years is practically at adult size. Its average capacity at birth is about 8 cu. m.m. At 2 years it measures 4x4x2 m.m.; at 5 years 7x7x4 m.m.; at 9 years 12x10x5 m.m., and 20x18x12 m.m. at adult life.

An attempt has been made here to explain the normal development of the paranasal sinuses, but something should be said regarding the faulty growth of these cavities. By the end of the first year nearly every infant has had at least one cold and then throughout childhood there are usually one or two colds each year. In this way an immunity is gradually acquired in the growing child, and so an occasional cold is to be expected—in fact the child is entitled to have it. But when one has a cold the membranes of the nose are not alone involved, instead the lining membrane of all the paranasal sinuses is involved at the same time. If the cold clears completely in ten day to two weeks the sinuses have not been damaged permanently but where the cold persists it is right to suppose that the infection is being held in the sinuses. This chronic infection depends upon many influencing factors; such as:

(1) General resistance of the child, (2) Living conditions, clothing and habits, (3) Poor nourishment, (4) Mechanical abnormalities in the nose and naso-pharynx that interfere with proper ventilation and drainage, and (5) the virulence of the infecting organism. Sinus infections in children are much more dangerous than any other focal infection, with the possible exception of ton-

sil infection, because the absorption of the toxin is supplemented by the ingestion of it. Furthermore, the original source of infection is frequently ignored when we attempt to explain the syndrome that Renault described as dependent on an inflammatory process in the middle ear and mastoid, associated with enteritis and marked dehydration followed by death in many cases, unless the ear condition is cared for very early in the case. In such instances absorption does unquestionably take place from the middle ear and mastoid, but in an overwhelming majority of such cases the primary infection is in the nasal pasages and sinuses. With the possible exception of adenoid hypertrophy and infection, there is nothing else that causes recurrent attacks of otitis media so constantly as antral and ethmoidal infection. Where otitis media occurs in conjunction with antral infection, cultures from the two localities will usually show the same germ life predominating. Delayed, faulty, and asymetrical development of the frontals and to a less degree the antra, is markedly dependent upon early infection of the maxillary and ethmoid sinuses.

From a standpoint of physiology the following functions are ascribed to the sinuses: (1) Lightening the weight of the skull, (2) Acting as reserve air chambers during respiration, (3) Serving as insulators to the orbit and the under surface of the brain, (4) Acting as resonators in the production of proper voice tone, and (5) taking some part in controlling our state of equilibrium. These may all be very necessary functions, yet they are hardly sufficient to explain the elaborate system of the accessory nasal sinuses. However there is still another most important service—the intricate part they play in establishing and maintaining immunity for us. Waldeyer's ring of lymphoid tissue apparently has the ability of selecting certain bacteria and by reactions that its structures suffer, an immunity is finally established against this particular form of bacteria that has attempted an invasion. Now it may become very necessary to remove two of the most important parts of Waldeyer's ring—namely the tonsils and adenoids, because they are heavily laden with infection and the adenoids may be interfering with breathing and the proper ventilation of the nose, but when this is done two of the major links in Waldeyer's ring have been given up. The result is that the remaining portion of this important ring of gland structure has double duty to perform and it can not always successfully control virulent infections that it attempts to handle in the future. Under these conditions the sinuses have to come to their assistance and though they do so in a less pretentious manner, they do help out considerably in controlling the infection and establishing immunity. When the sinuses fail in their effort to control the infection, a pathological state is established in them, and no longer are they capable of performing in a physiological way. This statement is not to be interpreted as a condemnation of the removal of tonsils and adenoids where such pathology actually exists in these structures as to justify their removal, but it should serve as a plea not to sacrifice the tonsils quite so early in life unless there is a very excellent reason for doing so. It is much better to remove the adenoids alone in many cases of very young children and take the tonsils later, if they can be kept with safety, at least until an age is reached when the sinus development is well advanced and the sinuses are resistant enough to fight harder in the immunizing process and themselves become clear after the battle. It is a fact that we are today seeing more sinus infection in the young, and this can likely be explained on the above grounds. Frequently, the first evidence of a sinus infection has manifested itself after a tonsil removal. Sometimes the little patient will show marked improvement after a T. & A., but a year or so later will begin having colds that become more frequent, and a careful X-ray study will show that the antra and ethmoids are markedly involved. On the other hand, the removal of obstructing adenoids will frequently serve as the best means of preventing sinus involvement, by establishing free ventilation, better drainage, and getting rid of a definite focus of infection.

The sinuses are, of course, subject to involvement by any of the forms of germ life that are capable of infecting the nasal chamber and other parts of the upper respiratory apparatus. The amount of trouble produced in the sinuses depends partly upon the virulence of the invading organism, but to a great degree upon the length of time the infection remains there before adequate relief measures are adopted. The histology of the membrane lining the sinuses is not quite the same as that lining the nasal chamber proper, and is less resistant to chronic infection, in fact the sinus membrane frequently becomes a pus producing membrane and rather easily undergoes polypoid degeneration. The free lymphatic vessel supply to the sinuses makes them capable of great absorptive powers, and this is most marked in the antra. Both the sinus and nasal membranes have a very rich sympathetic nerve supply, and are therefore histologically capable of pronounced vaso-motor changes. In the presence of infection the abnormal secretion of an allergic membrane is quite rich in protein, and the reabsorption of such secretion aggravates the allergic imbalance; therefore, it is with sound reasoning that efforts are made to relieve hay-fever and asthma, by drainage, ventilation, and lavage of the sinuses.

An accurate diagnosis of the sinus condition is very essential. A careful history will tell the physician a great deal and the parent or patient can give very valuable information if intelligently questioned. The duration of the nasal trouble, the tendency to recur, the matter of blocking up of one or the other sides of the nose, the character of discharge, the location of headache, if any is present, and the sensitiveness of teeth, are points that should be inquired into. Upon inspection of the nose the location of any purulent discharge is important, for the free escape of pus from the ostium is indicative of infection in that sinus. The turbinals are usually congested and edematous over a diseased sinus—probably an effort on the part of nature to wall off the infection, and though this is an excellent guide in diagnosis, nature defeats her purpose by this turbinal swelling for it interferes with the proper ventilation and drainage that is so important in the clearing up of the infected sinus. A post-nasal dripping will infect the gland structure of the pharynx, especially the columnar masses, and this may be the only visible evidence of sinus infection. Posterior rhinoscopy is a most valuable means of diagnosis for it will reveal small quantities of discharge that might otherwise be overlooked and will frequently give the location of the trouble. After spraying with a weak ephedrine solution and using gentle suction pus will sometimes appear at the ostium of the involved sinus. Transillumination is not an accurate means of diagnosis of a sinus disease for it depends upon contrast, so that in bilateral involvement it is almost worthless. It is of some value in diagnosis when the disease is unilateral. By far, the best position for the transilluminator is in the mid-palate portion with the lips tightly closed. A careful X-ray study of the sinuses gives very reliable information, but poor pictures are worse than none at all, for they lead to erroneous conclusions. The pictures should be taken by a competent Roentgenologist who is quite familiar with making sinus

plates. I prefer three sets of stereoscopic pictures, (1) the 23 degree angle antero-posterior to give the best anatomical view of the frontal, ethmoidal, and maxillary sinuses, (2) the chin-nose postero-anterior which distorts the frontal and ethmoids but gives an excellent view of the floor of the antra, and (3) the lateral view to show the sphenoids, frontals, impacted teeth, posterior palatine canal, and sella tursica pathology. An opinion should not be passed on wet films for much finer detail is present after the films are permitted to dry and crystallize. Soft exposures are much more satisfactory for sinus study than are the dark plates. X-ray films after lipiodol injection into the antrum with needle and syringe, will give very valuable information of the true pathology in that cavity, and films taken after the Proetz method of instillation of lipiodol by gravity displacement produced by suction will give important data as regards the ethmoids and sphenoids.

There are many complications of paranasal sinus disease in childhood. Infected sinuses can produce all the trouble that any other focal infection can cause, and the sooner the medical profession realizes this fact the more certainly will relief be given to such complications. Among the more frequent sequelae are asthma, bronchitis, pharyngitis, laryngitis, hay fever, recurrent otitis media, arthritis, nephrosis, and acute osteomyelitis of the bone surrounding the involved sinus. The less common complications are phlyctenular conjunctivitis, ulcer of the cornea, uvetis, optic, neuritis, chorio-retinitis, panophthalmitis, orbital abscess, cavernous sinus phlebitis, meningitis, and in older children, brain abscess. I will discuss a few of the more common complications and the first one to receive attention will be asthma in childhood. ASTHMATIC symptoms are not uncommon in children suffering with chronic purulent sinusitis, especially when the antra are involved. The nasal mucosa is edematous and there is a muco-purulent discharge that may be blown from the nose and that can be seen on the pharyngeal wall. The lymphoid tissue of the pharynx, especially the columnar masses, is swollen and infected. Pictures of the chest will likely show marked hilus gland enlargement, peri-bronchial thickening and possibly some bronchiectasis. The physician will likely obtain a history of almost continuous or recurrent colds with an asthmatic attack if the cold seems to be getting worse. In such cases very little permanent improvement can be expected unless the sinus infection and rhino-pharyngeal involvement can be cleared up. In an excellent article by Dr. Ferris Smith on "Asthma: Its Etiology and Surgical Treatment" in the December 1929, issue of the Annals of O. R. and L., the author concludes, "1st, A very large percentage of asthmas depend on chronic sinus infection; 2nd, The asthma may result from a coexisting sinus disease and the presence of some extrinsic allergin; 3rd, Surgery has been discredited in asthma cases because of the poor conception of the involved pathology and insufficient surgery for its removal, and 4th, That practically all asthmatic cases will be relieved if all the sinus infection can be removed." I have seen a number of Asthmatic cases that have apparently been permanently relieved by establishing free drainage and ventilation of the involved antra, followed by irrigations of these sinuses and treatment to the ethmoids.

BRONCHITIS, PHARYNGITIS, and LARYNGITIS are frequently the result of sinus infection and can be explained by the constant post-nasal dropping from these cavities. The discharge falls first on the pharynx, next on the larynx and finally into the trachea, and it keeps all these structures infected. Many cases of chronic bronchitis in children will improve promptly if the paranasal sinuses are cleaned up.

HAY FEVER is not so uncommon during childhood and it is not unlikely that this condition frequently has nasal and paranasal sinus infection as an underlying cause in many instances. The immediate or exciting etiological factor may be some foreign protein such as a pollen, animal emanation, bacterial toxin, or food toxin, but before these proteins can have an ill effect on the mucosa of the nose, the normal state of Allergic equilibrium has to be lost and the membrane of the nose become more permeable to the action of the toxin. Drs. Thos. E. Carmody and L. W. Green of Denver report many cases of hay fever relief after simple antral drainage and ventilation. I have seen cases where the clearing of sinus infection has relieved hay fever and I'm sure that most every otolaryngologist can point to several such instances. Sometimes such cases will be controlled by treatment to the sinuses and nasal mucous membrane and do not require surgery. The proper adjustment of the vitamin intake is especially essential in these allergic cases.

The association of recurrent OTITIS MEDIA with chronic sinusitis is well established and as has been stated cultures of the discharge from the ear and infected sinuses will frequently show the same germ life. The recurrence of this trouble can often be controlled by taking care of the sinusitis. If Otitis Media should recur after the sinusitis is supposed to have been cleared —look again to see if the sinusitis hasn't recurred also.

Many cases of ARTHRITIS in childhood can be explained on a basis of sinus infection. Ten years ago Dr. A. H. Byfield of Iowa City and Dr. L. W. Dean now of St. Louis reported a number of cases of multiple infectious arthritis in children relieved by properly caring for the existing sinus infection. Dr. McKim Marriott has reported several cases of chronic arthritis in childhood that responded to the cleaning up of paranasal sinus disease. I think most of us have seen such cases and we should always remember that the sinus can act as a focus of infection in causing arthritis.

Parenchymatous nephritis or NEPHROSIS in children is more likely to be dependent on sinus infection, especially antral infection, than on any other causative factor. Several such cases are seen in the pediatric division of any large hospital each year. Much literature has appeared on this subject, but among the earlier men to report series of cases were Clausen, Aldrich, Mitchell, Franconi and Norse, and Davison and Salinger. Nephrosis develops at times without assignable cause, but in a majority of instances it is preceded by a rhino-pharyngeal infection, such as a head cold, followed by a purulent discharge. After it develops there may be remissions and exacerbations, the latter being often coincident with more cold and nasal discharge. Nephrosis is characterized by marked general edema, oliguria, and albuminuria, but there is no increase in blood pressure, nor is there any hematuria or nitrogen retention. Examination of the antra will very likely reveal trouble, and a culture of the antral contents will nearly always show a staphlococcus—sometimes mixed with streptococcus. Now, of course, all staphlococcal infections of the antra are not associated with nephrosis, but neither is all scarlet fever complicated with nephritis though we know that nephritis is not uncommonly a sequela of scarlet fever. Even if it is difficult to explain just how nephrosis develops from sinus disease, the fact remains that a good number of these patients show marked improvement and some are freed of their clinical symptoms, by relieving the naso-pharyngitis and sinus dis-

ease. Free ventilation and drainage of the involved sinuses will do much toward effecting a cure, if such procedure is not delayed too long. It is my belief that children who develop a nephrosis from sinus infection probably are decidedly sensitive to a bacterial toxin produced under certain conditions, and that possibly the effect in the kidney may be compared to that of an allergic reaction elsewhere that is dependent upon a bacterial toxin. Some cases have cleared clinically by simply ventilating an antrum that was infected with Staphlococci, though the nasal infection persisted—and this is rather suggestive that the growth of certain organisms under anaerobic conditions in a closed cavity may cause an altered type of toxin from that produced by the growth of the same organism under aerobic conditions.

ACUTE OSTEOMYELITIS of the bone surrounding the diseased sinus is not infrequent but in most cases, I believe, it is limited and takes care of itself after ample drainage is established. It may, however, be a complication to the procedure of draining the cavity, though the possibility of its development should not alter the surgeon's course in establishing drainage. If the process should be extensive it will probably require a removal of all involved bone.

The two most prominent SYMPTOMS of sinus disease in infancy and early childhood are nasal discharge and blockage. These symptoms are not however Pathognomonic for they may mean infection of the nasal mucosa without sinus disease, adenoid hypertrophy and infection, foreign body, syphilis, or tuberculosis of the nose. The discharge may be practically all postnasal and is usually swallowed by the patient. On examination it will likely be seen on the pharyngeal wall and upon looking into the nose the pus will be seen especially in the region of the ostia of the sinuses. If wiped away from the ostia it will soon reappear. If there is a closed empyema of the sinus, there may be no visible pus. Sneezing is a very common symptom of sinus disease in infancy, but it may also be caused by other nasal diseases.

In ACUTE sinusitis in children, in addition to nasal blockage and discharge there is likely to be a fair rise in temperature with pain or headache over the cavity if there is enough swelling around the ostium to produce closure. Pressure on the floor of the frontal sinus causes pain if that cavity is involved, and there will likely be tenderness on pressure over the cheek and sensitiveness of the teeth on the same side of an acute antral involvement. In chronic sinus disease there will probably be no fever and no tenderness over the diseased sinus but the patient is listless, anemic, underweight, and frequently has a poor appetite. In the chronic cases there is usually a history of recurrent colds and frequently recurrent otitis media.

TREATMENT

Measures that might be considered as preventive to the development of sinusitis in childhood, would be essentially the same as those that should be practiced in the prevention of colds. It is absolutely necessary to have free ventilation and drainage of the nose if sinuses are to remain healthy. Obstructing adenoids should be removed, even in infancy, if necessary to establish free breathing through the nose. Injuries to the nose, though apparently of little consequence, should be cared for, to prevent deformed septa with consequent nasal blocking. If the septum shows a deformity resulting from some injury of long standing, it is better to let the child reach the age of sixteen or seventeen years, before correcting the deformity, unless the resulting nasal blockage interferes seriously with breathing or is causing marked pressure symptoms. Every acute cold should be given serious attention and efforts made to clear it up before the sinuses are involved. Weak ephedrine spray to promote ventilation and prevent the retention of discharge is advisable when the condition is acute. If the nose is not opened by the first spraying, then ten minutes later spray again, and after ten minutes more use a dropperful of 10 per cent to 15 per cent Argyrol in each nostril. The head should be well back over a pillow, when the Argyrol is instilled. I believe the ethmoid cells are always the first sinuses infected and that if they can be cleared promptly the others will not likely become involved. Small tempons, with thread attached, soaked in 10 per cent to 15 per cent Argyrol and placed under the ostia of the ethmoids, will do much in relieving the infection there. After shrinkage, a little gentle suction while the head is erect is valuable in some cases, and careful irrigations with warm normal saline solution without much pressure is helpful in clearing the nose of infected material. I do not subscribe to the use of displacement irrigations in acute conditions.

In the care of Chronic Sinus cases, it is essential to establish good ventilation and drainage. No chronic sinus disease is ever cured by irrigation alone, for the sinus is an air cavity and the membrane must be exposed to plenty of air if it is to return to a normal state. Irrigating through the natural opening is very easy in children, and has the advantage of insuring good ventilation, for the membranous natural opening can easily be enlarged at the time the canula is inserted for irrigation, and the enlarged opening will remain patent a long time. In children, however, a naso-antral window through the inferior meatus has the advantage of promoting constant drainage, and of not permitting the discharge to accumulate in the cavity. Extreme care should be exercised to prevent trauma to the inferior turbinal and mucous membrane of the nasal floor, for the swelling of these structures will partly interfere with drainage, may cause adhesions, and causes discomfort to the patient by bleeding, and blocking of the nostril. It seems to me that inferior meatal windows are especially valuable in antral disease of children, because the floor of the sinus is usually above the floor of the nose and it is therefore possible to make an opening in the most dependent part of the cavity. This cannot always be accomplished in an adult case. Even if the inferior meatal window is made, it is also very valuable to irrigate through the natural opening occasionally so that ventilation will be insured at the time nature closes the lower opening. It is my experience that a permanent opening can be established in the inferior meatal wall if the original opening is enlarged two or three times when it is making an effort to close. A large window in the inferior meatus will usually remain open for about 6 to 8 weeks before requiring enlargement. The best irrigating solution is warm normal saline or plain tap water. I have never found that an antiseptic solution for irrigation ever did any good, but if about 5 c. c. s. of 2 per cent to 4 per cent Silver Nitrate solution is instilled into the antrum after it has been irrigated, it seems to stimulate the membrane to a healthier condition. The Silver Nitrate should not be used often but only when the irrigations are apparently not accomplishing much change in the amount of pus in the washings. I have never gotten any good results from using gradual increasing strengths of alcohol in the antra. Irrigations of chronic antra should not be done oftener than twice a week in the average case, but I believe it is well to show the parent how to irrigate the nose once daily with a soft rubber ear syringe, using normal saline for this purpose. This is done to rid the nose of any in-

fected material that drains out of the sinuses and thereby give better ventilation.

Surgery to the ethmoids, sphenoids, and frontals is rarely justified in childhood. By establishing drainage to the antra through the inferior meatal wall, the other sinuses have a much better chance of recovery because they are not constantly contaminated by the overflow of pus from the natural openings in the antra. Treatment to the ethmoids and sphenoids is quite valuable after the antral drainage has been established. This treatment should consist of Argyrol or Icthyol tampons and in chronic or subacute ethmo-sphenoiditis, the Proetz displacement irrigations are sometimes of much value.

Radical antral surgery, such as the Caldwell-Luc procedure, is quite necessary and entirely justifiable during childhood if after free ventilation and drainage with irrigations the antral disease has not improved. Polypoid degeneration or a very thick hyperplastic membrane that shows no tendency to respond to ventilation and drainage, are good indications for radical surgery.

It is not a good plan to use Ephedrine with any regularity in chronic sinus cases, for there are certainly some nasal mucous membranes that show a marked secondary relaxation following its use and after a while the turbinals become quite boggy.

Among general measures to follow, the proper heating of the living quarters is of considerable importance. An open gas stove or a central hot air system is damaging to the nasal mucous membrane, unless the proper amount of humidity can be maintained. The dry air will cause a swelling of the turbinals in order to afford a larger moistening surface, and this not only interferes with proper ventilation of the sinuses, but the turbinal membranes crack and open up an excellent avenue for the entrance of germ life. The air should have enough moisture in it.

The child should be warmly clothed during the winter months. I want to condemn the practice of children wearing short socks in the winter months, for I believe it is much better to have their legs covered with stockings when they are exposed to cold weather.

An abundance of sunshine is very advisable. The child usually gets enough of this in the summer time, but during the winter months ultra violet ray exposures in graduated doses are quite valuable to the child with sinus disease.

The diet should be well-balanced and regular. Special care should be taken to supply foods that are rich in Vitamines A and D. Vitamines A and D are supplied in cream, egg yolk, liver, brains and sweet breads. They are also in leafy vegetables and in the pericarp of cereals. Sweets and candies should not be in the patient's diet, for the child whose diet is principally of carbohydrates will have more colds and sinusitis. Cod Liver Oil more abundantly supplies Vitamines A and D than any other oil and it therefore serves as an excellent tonic, especially during the winter months. It is also quite well to supply calcium in about 5 grains 2 or 3 times daily, and in order to hold the calcium in the blood stream 1/20 grain of Parathyroid can be given 2 or 3 times daily. A tablet can be obtained on the market that contains 1/20 grain parathyroid and 5 grains of Calcium.

Varicose Veins

By Kathryn Buckner, M. D.

Presented Before the Staff of the Methodist Hospital, Dallas, Tex.

So often varicose veins are accompanied by disability. Many patients suffering from them become invalids, but with proper treatment they may go about their normal work comfortable.

The time honored excision of the offending veins is not successful in a large percentage of cases and has for the most part become supplanted by new methods of treatment.

ANATOMY

The word "Varicose" is derived from the Latin "Varicosus" meaning dilated, and applied to veins means the knotty, cylindrical or sac-shaped enlargements of the lumen of the vein involved.

For convenience veins are classified as to the amount of fibrous, elastic, and muscle tissue they possess.

(1) Fibrous veins are those like the menigeal which do not need elastic tissue. A bony structure supports them and there is a constant supply of blood flowing through them.

(2) Fibro-elastic such as the radial or subclavian do not need the support afforded the leg veins.

(3) Fibro-elastic plus muscle fibers characterize the saphenous and femoral veins. Here the blood pressure must be counteracted and supported.

Other groupings have been suggested with regard to the size and shape of the varicosity.

The deep veins from the foot and ankle become the popliteal vein at the lower edge of the popliteal space. The popliteal vein at Hunter's canal becomes the femoral vein and continues as such until it passes under the inguinal ligament where it is called the external iliac. Later at the brim of the true pelvis it unites with the internal iliac becoming the common iliac vein.

The superficial venous system of the leg consists of the long saphenous and the short saphenous veins. The long saphenous vein forms over the inner side of the foot and ankle, passes upward just internal to the edge of the tibia, past the internal condyle of the femur and then along the inner side of the lower thigh and on upward joining the femoral vein of the deep system two inches below the popliteal ligament. The short saphenous vein collects the blood from the back and external border of the foot and the back of the calf and joins the popliteal vein in the upper edge of the popliteal space. Both systems are extensively connected.

The cusps of the valves of these veins face upward and inward tending to prevent the reflux of blood and to maintain the column above them. These cusps are usually distal to the opening of a tributary vein.

Small normal veins are parallel and closely placed along the course of the saphenous. This anatomical fact is responsible for most apparent recurrences following operation or injection of veins.

ETIOLOGY

In considering the etiology of varicose veins most authorities place the hereditary and congenital factor as being responsible for more than 70% of all cases. This means that the patient is born with vein walls weaker than the normal person's, so that when he is subjected to the strains of adult life there is increasing conjestion in the veins of the extremities and the vein walls give way and dilate. Such strains occur in pregnancy and in occupations demanding long hours of standing or walking on hard floors with poor shoes.

Often a patient dates the onset of his varicose veins from an attack of pneumonia, influenza, or typhoid. This would certainly give weight to the theory that a systemic infection is an active cause of this trouble whether there are congenitally weak walled veins present or not.

Then there is the endocrine factor which is no doubt important. This endocrine factor is most active and its results are most often seen associated with the three periods of the menstrual function, onset at puberty, pregnancy, and the menopause.

With this explanation in mind it seems logical that more varicose veins could develop in new groups and from new sources, even though the original varicosities had been entirely obliterated. For the physician's reputation as well as the patient's peace of mind, the possibility of this should be fully explained at the time of the first treatment.

DIAGNOSIS

If every dilated vein on the lower extremity is regarded as a varicose vein and treated as such, grave mistakes may occur. A group of rare but well defined cases of multiple arteriovenous communications may give rise to a mistake in diagnosis. In such a condition no pulsations are visible as the communications are small. They are congenital and are manifested early in life. The affected limb is warm and larger than the other. The color of the vessels is red, indicating arterial blood. Such cases require extensive surgery with ligation of the feeding arteries and extirpation of the dilated veins, which if left alone would give rise to gangrene.

Buerger's disease, which affects arteries as well as veins, not infrequently starts with a spontaneous phlebitis, which subsides and occurs again. These recurring attacks may result in dilated veins with valvular insufficiency. Unless attention is paid to the

absence of pulse, the dependent rubor and the characteristic intermittent claudication, the mistake is made of injecting such veins with sclerosing solutions.

PATHOLOGY

David H. Patty has done some worth-while studies in tissue reactions following vein injections. Most of the laboratory work was done on rabbits. The ear veins were injected with 1 c.c. of 30% solution of sodium salicylate. In fifteen minutes a section of the vein was made and then at half hour intervals for six hours, other sections were made. Enough animals were injected that this process could be continued at hourly intervals for twelve more hours.

To the eye the immediate effect was a general dilatation. By fifteen minutes, circulation of the injected vein had ceased owing to an intra-vascular coagulation. After some hours and especially at the end of twenty-four hours the whole ear had become swollen and edamatous. Microscopically, the first change seen was a slight wrinkling and a deposit of blood pigments in the endothelial cells lining the vein. Later the endothelial lining tended to degenerate and disappear. The vein wall stained poorly and occasionally became fragmented, and by twenty-four hours was almost completely destroyed. At first the surrounding tissue showed no change but later a progressively increasing infiltration with polymorphonuclear leukocytes could be seen. Therefore, the three stages: (1) intravascular coagulation; (2) destructive changes in the vein wall, and (3) acute inflammatory changes in the surrounding tissue.

Five per cent sodium morrhuate differed from the 30% salicylate in that it was not such a certain thrombotic agent. 13% quinine with 6½% urethane gave the same results but was so often toxic to the small animal that accurate results were difficult to obtain. 60% glucose gave no effect.

There are three suppositions as to the cause of the clot produced in the vein by injection.

(1) The solutions have a direct coagulating action on the blood.

(2) Coagulation results from the inflammation set up in the vein wall.

(3) Clotting results from the physical action of the solutions on the vein wall.

Sicard was the first to inject veins. He mixed some blood with the above mentioned agents and found that the clotting time was prolonged! This rules out the first supposition. The inflammatory reaction is important but experiments show that inflammation may occur without a clot. If the physical reaction, osmosis, were the correct explanation then glucose would prove to best sclerotic. Therefore the most apparent reason for the clot obtained is the chemical action on the vein wall resulting from a momentary contact with the sclerosing solution. As a result the tissue juice is presumably liberated which combines with the fibrinogen of the blood.

Generally speaking, the sequence of events after the injection of varicose veins in man seems simular to that in animals. As a rule no pain is felt at the time of injection, though sodium salicylate may be an exception. Judging from the average history thrombosis is present within eight hours after injection. In most cases a varying amount of discomfort due to inflammation in and around the vein wall is complained of some hours after the injection and is worse the next day.

The question is raised as to why the solutions do not go into the deep veins. Possibly the best explanation is that the rate of flow in the superficial veins is so slow that it approaches stagnation.

INDICATIONS FOR INJECTION

Patients present themselves for treatment for reasons varying from cosmetic desires to actual need for relief of pain and disability. Physicians vary almost as widely in their opinions. All agree that varices which are so large and painful that they partially or totally disable the patient should be treated. Varices which have developed the complication of ulcer, eczeme or pruritus are also routinely treated. In addition the more liberal minded clinicians believe that varices associated with arthritic pains above the ankle or knee should be injected. Often the apparent rheumatic condition is due to the varices themselves and are not truly rheumatic.

It seems to be fairly universal that injection should not be done in the presence of infectious thrombophlebitis, new or old. O'Neil thinks, however, that this condition is a particular indication providing the trouble is only in the superficial system. It is, of course, obvious that the injection therapy can not be applied in conditions of deep thrombophlebitis such as phlegmasea alba dolens. Varicosities of the long or short saphenous systems convey a slow running blood stream which in some instances is almost stagnant, thus favoring phlebitis caused by focal infections, trauma, or systemic diseases. O'Neil's treatment in such cases is excision of the saphenous vein in the thigh and injection below.

CONTRAINDICATIONS

In the presence of systemic diseases such as hyperthyroidism, active tuberculosis or even an acute cold, injection should be withheld. On record a case of mild tuberculosis was injected and an acute military tuberculosis resulted six weeks later.

Mechanical obstruction is another contraindication. In the varicose vein, the flow of blood is reversed, without a true obstruction to the back flow. Obliteration of such dilated channels restores the venous circulation to normal. If, however, the superficial veins are dilated because of a true obstruction as in pregnancy, abdominal growths, and pelvicthrombi, the dilatation is compensatory. The most frequent mistake is made when such compensatory dilatations are injected in the presence of edema and injections into edematous legs usually increases the edema. Edema always signifies insufficient venous return.

TREATMENT

Any existing endocrine pathology must be corrected. Properly fitting shoes should be worn. Some authors attach great significance to the association of varicose veins with flat feet and fallen arches, and believe in the correction of this disability before the varicose veins themselves are treated. All constrictions about the leg which would tend to prohibit the normal flow of blood must be discarded.

It is very logical that there is a continued and repeated increase in the abdominal pressure associated with the severe coughing of chronic bronchitis and other pulmonary conditions. This would increase the back pressure against the sapheno-femoral valve and cause it to give way with the resultant varix formation. Therefore on this basis all measures should be taken to correct any chest pathology present.

Tumors of the pelvis should be taken care of operatively, or otherwise, as the condition indicates.

The occupation should be changed if necessary and if possible. At least, the patient standing long hours

may be advised to stop at intervals and walk a few steps, thus emptying the venous channels in the lower leg.

No leg should be injected without applying the tourniquet test, unless, of course, the patient has worn an elastic stocking. The test consists in placing a tight tourniquet above the knee and permitting the patient to walk about for five or ten minutes. If cramping or swelling do not result then the deep veins are open and the offending superficial veins may be sclerosed. Most operators prefer the patient in the prone position while others insist on a standing position. Probably the simplest method is to allow the patient to sit on the examining table. From this position the legs may be elevated at will or the patient may conveniently stand, placing his weight on his foot. In large varices the needle may be inserted with the patient in the sitting position and then as the patient lies down the vein will partially empty and the sclerosing fluid may come in direct contact with the vein wall. After all the solution has been injected the needle is left in the vein for a few seconds and when removed a piece of cotton is pressed firmly over the point injected for several minutes. The part may or may not be bandaged.

The solutions in most constant use are listed in the order in which the majority of clinicians prefer them.

(1) Calorose, which is invert sugar 75% and cane sugar 5%.
(2) Quinine and erethane.
(3) Invertose—a plain solution of invert sugar in 50, 60 and 70% solutions.
(4) Invertose compound—a solution of invert sugar and sodium salicylate.
(5) Sodium salicylate, 20, 30, and 40%.
(6) Sodium chloride 20%.
(7) Bichloride of mercury—1 c.c. of a 1% solution.

Where varicose ulcers exist adhesive bandages are extensively employed in connection with or before the injection treatment. By directing attention to ulcers of the lower extremity which are associated with arteriovenous fistula, it may be seen why the use of an adhesive bandage would be of value in treating them. In order that oxygen may be properly distributed to the extremities the blood must pass through the capillaries before reaching the venous system. In the arteriovenous fistula the blood does not pass through the capillaries but is emptied directly from artery to vein. Consequently and logically, ulcers which develop in connection with arteriovenous fistulas occur below the arteriovenous opening. In such a case if a tight bandage is applied so that the vein at the point of the fistula is compressed and the blood is forced to pass through the capillaries, healing rapidly follows. Here it is better to inject such veins after healing takes place by the bandage method.

POSSIBLE COMPLICATIONS

Today it is no longer necessary to argue the principle of the injection treatment, but rather to emphasize the possible errors and mistakes that are frequently made in a type of procedure which is easily accessible to both physician and patient. History repeats itself when a new drug is synthetized, a new biological product isolated or a new procedure devised. A wave of enthusiasm follows the introduction of the method. When injection of varicose veins was first advocated and tried on a large scale by Linger, Sicar, and Nobl, working independently, a deluge of favorable reports followed in every country. No untoward reactions were mentioned in literature until recently.

COMPLICATIONS

(1) Pulmonary embolism.
(2) General symptoms.
(3) Failure of a vein to respond to injection.
(4) Injection ulcers.

Pulmonary embolism is a theoretical danger for the most part, but was the first objection raised. It is exceedingly rare. In the first place varicose veins are a very rare source of emboli at any time. The stagnant condition in the vein that favors thrombosis renders embolism unlikely. Also in and around the vein wall there is an inflammatory reaction that favors early adhesion and organization of the contained thrombus. A search of literature has revealed a total of only nineteen cases of embolism following injection of hundreds of thousands of cases. Of these, fourteen were fatal and five recovered. It is well to keep injected patients ambulatory and to inject only small amounts of the solutions at a time. As to the general symptoms, following injections patients are not as a rule upset, but are able to continue their normal occupations. Quinine and urethane may give toxic symptoms in overdoses.

A rare case now and then is found where the veins do not respond to injection. In such cases excision of the offending veins is necessary.

When an injection ulcer occurs it is usually an indication that the solution has been injected into or has leaked into the tissues around the vein. Occasionally such an ulcer may occur when the injection is made properly. The vein wall and all surrounding tissues slough. These ulcers are painful and chronic and often constitute a greater nuisance than the original veins. No solution is exempt from liability.

The Role of Physiotherapy in Disabilities of the Feet

By Rudolph S. Reich, M.D., F.A.C.S., Cleveland, Ohio

Foot disabilities constitute an appreciable percentage of the orthopaedic surgeon's office practice, and may be classified as follows:

A. Pathological:—
  (1) Deformities resulting from poliomyelitis
  (2) Arthritis
    (a) Acute infectious
    (b) Chronic
  (3) Tuberculosis
B. Congenital:—
  (1) Congenital talipes equino varus
  (2) Congenital cavus
  (3) Congenital pes planus
C. Mechanical:—
  (1) Pes planus
    (a) Flaccid
    (b) Rigid
  (2) Actue foot strain
  (3) Muscle bound feet

In each of these groups of cases we are gradually recognizing the aid physiotherapy is rendering us, either as a direct therapeutic measure or as an adjuvant in rehabilitation after operative or mechanical treatment or immobilization necessary for some foot diseases, such as tuberculosis.

As regards the pathological group of foot disabilities, the story of physiotherapy in poliomyelitis is a chapter in itself which has been so forcibly and efficiently advocated in these pages that repetition here is unnecessary. In acute infectious arthritis, heat in the form of diathermy, paraffin, and infra-red is a distinct aid in the acute stage, and surely in the after treatment, augmented by well directed massage and manipulation of those joints where there is *definitely no evidence of joint destruction.* In chronic arthritis, heat in various forms offers a great deal of relief. Tuberculosis of the ankle joint is amenable to ultra-violet therapy, recognized now as a standard form of conservative treatment.

We are all familiar with the frequency with which completely corrected congenital deformities, particularly congenital talipes equino varus, the congenital club foot, recur in infancy, and it is only with the assistance of physiotherapy that we are able to maintain this correction until the age of weight bearing and locomotion. Although corrective braces also assist in maintaining position, I do not think there is any apparatus as satisfactory as the systematic manipulative methods of physiotherapy. Just to recapitulate, the congenital club foot presents three distinct problems which must be simultaneously observed after corrective manipulation has been completed. First is the cavus deformity, due primarily to the contracture of the deltoid ligament, and secondarily to defective development of the inner tarsal bones, particularly the neck of the astragalus and scaphoid. Next is the supination of the heel; and thirdly, is the equinus deformity, due to contracture of the tendo achilles. Shoe corrections, such as a wedge on the outer borders of the heel and sole, assist in maintaining correction on weight bearing.

The cavus deformity presents a rather obstinate problem in orthopaedic surgery. The usually marked accompanying atrophy of the calf muscles suggests poliomyelitis as a possible etiology, but the symmetry of the lesion is so unlike poliomyelitis that it must be regarded as a congenital lesion. This deformity also presents three problems. First and foremost is the contracture of the plantar fascia; second, is the hyperextension of the toes; and third, the contracture of the achilles tendon, and as previously stated, all these defects are bilateral and unusually symmetrical in distribution. Operative correction is the ultimate therapeutic procedure, followed by muscle reeducation, especially of the tendon of achilles, the dorsi-flexors of the foot, namely the tibialis anticus and the peroneus tertius, and probably the toe extensors, if they have been transplanted into the metatarsals. The achilles tendon must be stretched, or so maintained if it has been lengthened, the tibialis anticus and peroneus tertius are reeducated as dorsi-flexors of the ankle, and the toe flexors must be properly restored to their physiological function.

Congenital flat foot usually is recognized at birth as a calcaneous deformity with the dorsum of the feet resting against the lower leg and no plantar flexion perceptible. Treatment should first be directed to stimulating function of the calf muscles and then to strengthening the tibialis anticus and posticus. This condition should be carefully supervised until the infant attempts locomotion, when it should be properly shod and the shoes wedged on the inner border of the heels. At this stage, a careful assessment of muscle function should be determined, as the deformity frequently relapses when weight bearing is attempted. Nothing but muscle education methods are of any permanent avail. We have all seen these children where there is so much pronation of the feet that weight is virtually borne on the scaphoid bones, and the muscles and all supporting structures are decidedly flaccid. If the child is over-weight the resultant condition is obvious. This type of case presents truly gratifying results which only physiotherapy can accomplish, by massage, muscle reeducation and exercises, and it is interesting

to see the development of muscle tone and the gradual formation of a longitudinal arch. It is well to observe these cases until early adolescence, continuing active exercises at home under intelligent supervision.

As for static foot disabilities, as previously stated, they constitute a large percentage of the orthopaedic surgeon's office practice. These patients always come in with a complaint of pain. In many instances it constitutes a very serious economic problem, especially for individuals such as salespersons, solicitors, etc., who depend on their ability to get about for their livelihood. In the majority of these cases there is the usual garden variety of flat foot with pronation and eversion. Pain is usually through the tarsal region and if it is associated with a flattened metatarsal arch, as it frequently is, there is also tenderness of the second and third metatarsal heads or both. Frequently there is pain in the calves, occasionally in the thighs, and rarely in the lower back. In fact, all types of pains have been attributed to this condition.

A short achilles tendon has been ascribed by many as being the chief etiological factor in the formation of flat feet. There is no doubt but what it is, but, in my opinion, in only a minority of cases. This group is discussed in a succeeding part of this paper. Most cases have a relaxed achilles tendon, and this factor must be carefully differentiated, for the treatment varies decidedly in these two groups of cases.

As for treatment, it is a well known fact that most physicians dismiss these patients with proper shoes and with various types of arch supports. This treatment is very satisfactory in a great proportion of flat foot cases and is a great blessing to many, for it does relieve the symptoms and permits them to return to their gainful occupations. Many patients are permanently relieved by this sort of treatment, provided they continue to wear their supports. In other words, they are addicted to their arch supports, but how far does this treatment tend toward a rational relief of this condition?

What should be the object of treatment of flat feet? First, anatomical correction; secondly, functional restoration. There is no form of treatment that will restore the longitudinal arch to its anatomical perfection and what is more, this is not always necessary, as proved by the result obtained among marching men in the army. Our experience during the war has shown that the man with the partially flattened longitudinal arch was able to march longer distances and endure the strain of infantry drill much more satisfactorily than the man with a high, apparently perfect anatomical longitudinal arch. In children it is well to consider hereditary influence in the appearance of the feet. On inquiry or inspection, one will find that the child's feet closely resemble that of the father or the mother, and obviously, it is impossible to vary this hereditary development of the longitudinal arch.

On the other hand, functional restoration is a very important factor in treatment and must by all means be accomplished if possible. As previously stated, the fitting of arch supports achieves the most rapid result as a general rule. However, if one attempts to gain a functional restoration, this can only be accomplished by means of physiotherapy in the form of exercises and muscle reeducation, concentrating mainly on the supinators of the foot, namely the tibialis anticus and posticus and the toe flexors. This, of course, may be done in conjunction with the fitting of arch supports.

Rigid flat foot is a condition derived from the superimposition of arthritis on an old case of flat foot. The treatment of this condition is very difficult and the most that can be hoped for is to obtain a type of correction that will give the patient the greatest amount of relief, and if possible, permit him to bear weight and walk about with comfort. The role of physiotherapy in this condition is the hope of relieving muscle spasm and overcoming pain, mainly with the aid of physio-therapy such as diathermy, baking, infra-red, paraffin, etc.

Acute foot strain is a condition which is rarely encountered but yields only very obstinately to treatment. It usually occurs in those individuals who are unaccustomed to undue weight-bearing or locomotion and have been suddenly subjected to this strenuous regime. It manifests itself by a marked unilateral or bilateral spasm of the peronei muscles, drawing the foot in pronation and eversion. Any attempt at correcting the pronation and eversion by passive exercise is met with marked resistance and severe pain. Weight-bearing and locomotion are both very painful and there is marked swelling of the feet, particularly along the course of the peronei muscles. Treatment consists in correcting this pronation and eversion by means of manipulation under anaesthesia and the application of a plaster cast for approximately two weeks, during which time the patient is required to elevate his feet and no weight-bearing is permitted. After the plaster cast has been removed, physiotherapy in the form of heat therapy, light massage, and cautious active and passive movements should be resorted to. Weight-bearing should be permitted only with the aid of well-fitting arch supports in well-fitting shoes. A crepe rubber arch support, made after impression of the foot, has been more satisfactory than a metal support in my hands, as it permits flexibility of the tarsal joints, is lighter and more comfortable. There are some cases not so severe which yield to physiotherapy, by means of heat, cautious active and passive movements, etc.

The condition which I particularly want to emphasize in this paper is muscle-bound feet. This condition occurs only rarely in children and adolescents, most frequently in adults over forty, women predominating over men to the ratio of approximately three to one. The symptoms of this condition are variable, depending entirely upon the degree ofthe muscle-bound foot. In most cases the patient usually comes complaining of pain in the muscles of the calf, this symptom being aggravated in attempting to walk in slippers without heels. If the condition is more advanced, these patients will eventually complain of metatarsalgia situated in the heads of the second and third metatarsal bones, and as the condition progresses, the pain continues up along the back of the thigh and into the lower back. This condition is due invariably to elevated heels.

Contracture of the gastrocnemius and soleus muscles results, rendering dorsi-flexion of the foot very difficult and eventually impossible. As the condition progresses, the calf muscles have become so powerful that the dorsi-flexors of the foot are unable to cope with this excessive power and the accessory dorsi-flexors of the foot, namely the extensors of the toe, are called upon to assist in dorsi-flexion. Inasmuch as the dorsi-flexors of the toes are attached to the bases of the terminal phalanx, hyper-extension of the metatarsal-phalangeal joint and flexion of the inter-phalangeal joint of the toes result, causing a flattening of the metatarsal arch and eventually developing hammer toes. We next have a complex condition, a contracture of the achilles tendon, contracture of the extensor tendons of the toes, and possibly the development of hammer toes. This ailment is quite prevalent and like most foot conditions is often treated by the fitting of arches, but without

success. These are the patients who may have flattened longitudinal arches if the counter action of the achilles tendon has caused such a strain on the plantar fascia that it has become stretched and eventually the longitudinal arch becomes flattened. In this case, the tension of the plantar fascia has caused severe pain in the heel, due to the formation of a periostitis of the os calcis at the attachment of the plantar fascia. Unless the symptoms are relieved at this stage a painful exostosis or spur develops on the os calcis. This exostosis or spur is unlike the spur we get in infectious conditions, in that it assumes a horizontal position following the plantar fascia at its attachment with the os calcis. As previously stated, the fitting of arches gives very little relief in this condition, and treatment should be analyzed and rationally directed before any real improvement can be obtained. Pronounced reduction in the size of the heel of the shoe must under no circumstances be immediately attempted, as in many instances it is necessary to insert a rubber cushion inner pad for a short time to further elevate the heel until some of the acute symptoms have subsided. If the metatarsal arch has become affected, it is well to fit the shoe with a metatarsal lift. If the longitudinal arch has also been affected, a longitudinal arch support may be incorporated with the metatarsal support, also to be made of crepe rubber, and fitted accurately to the conformation of the sole of the foot. As the symptoms subside, the heel of the shoe may be gradually lowered but this must be done very cautiously and only as the patient's condition progresses.

However, in spite of all the shoe correction and the application of longitudinal and metatarsal arch supports, this condition cannot be improved without the proper physiotherapeutic treatment. This treatment should aim to do as follows: (1) An attempt should be made to stretch the achilles tendon and gastrocnemius and soleus muscles, so as to obtain an increased amount of dorsi-flexion of the foot, preferably to a point past the right angle position; and (2), the extensors of the toes should also be stretched so that the toe flexors may be so functioning that the proximal phalanx is on a line with the metatarsals and the distal phalanges are actually flexing beyond this plane. In attempting to stretch the achilles tendon, the foot must not be forcibly flexed at the ball of the foot for the strain will again be thrown on the plantar fascia and a flat foot condition may result. This may be accomplished by forcibly extending the heel of the foot, and the patient is urged to forcibly dorsi-flex the foot, preferably using the real dorsi-flexors instead of the toe extensors. In older individuals this is sometimes very difficult and occasionally impossible to accomplish because the contracted gastrocnemius and soleus muscles have become somewhat fibrosed and the elasticity which is present in younger individuals has been lost. In these cases, Dr. Russell A. Hibbs and Dr. Frank D. Dickson have suggested the necessity of actually lengthening the achilles tendon. They feel that this should be a routine procedure and that it definitely shortens the disability. My experience has been that operative lengthening of the achilles tendon is rarely necessary in these conditions, and that the patients usually improve with carefully planned physiotherapy and proper fitting of shoes and arch support.

10515 Carnegie Ave.

A Case of Post Influenzal Myelitis

By Beatrice Woodcock

In February of 1930 a young married woman of 23 years came to the Clinic giving the following history:

The last week in May, 1930, she began having acute pain in the back, with aching all over. She was so sore that she was unable to drive a car and for two weeks complained of drowsiness. A doctor was consulted who gave a diagnosis of muscular rheumatism. She went home to bed with no knowledge of paralysis. Two days later on attempting to walk she fell to the floor.

The paralysis increased until June 9, at which time she had involvement of the upper and lower extremities, back and abdominals. She became incontinent and had disturbance of vision; complaining of the feeling of a veil over her face. She was carried to hospital where a spinal puncture and other tests were made and was diagnosed as a Post Influenzal Myelitis.

Control of the bladder and rectal spinchters returned in about two days and some improvement was noticed in the upper extermities.

At the time that she came to the Clinic had been up in a wheel chair for four months. In sitting she carried part of her weight on her hands. The abdominal muscles were very relaxed and she had all the appearance of a full term pregnancy. There was no sensory disturbance. Was referred to the Physiotherapy Department where a muscle test was made. On the left side the hip extensors, adductors and quadriceps gave a trace. Toe flexors were poor and all other muscles were absent. On the right side hip extensors were poor, toe extensors poor, peroneals normal and the rest absent. Back muscles and abdominals gave a trace. Chest expansion was as low as I have ever seen it and there was a good deal of atrophy of the chest muscles.

In determining the treatment the question was whether to treat as a Polio and go slowly, or whether to push persistently as much as patient could stand. In examining the patient it seemed that though the paralysis was definitely flaccid there was a distinct lack of co-ordination. For example, the patient could not tell whether she was moving the left or the right food. Sometimes after contracting a muscle, she would ask, "Did I do that?"

So we decided to push as much as she could stand. Long leg braces were made, with gluteal straps, and a strong corset. A body brace was considered, but in view of the fact that long leg braces were necessary it was felt it would be too much in the way of harness.

The patient reported for treatment three times a week and was started in the pool. At first she was unable to control head and neck muscles and would get extremely panicky. Difficulty in breathing also added greatly to her trials. Muscle training as for a polio was given together with swimming. This was followed by massage and standing in braces. Slow but steady progress was made. Arm movements improved almost rapidly as did breathing, but control of the head and neck was very slow in returning. After three months pool work there was noticeable improvement particularly of the upper part of the trunk. In the first place she learned to pull up on side of the pool. She learned to walk backward, finding it easier than walking forward. By the first week of June she had regained enough balance to stand alone in braces.

From June to October she was taken daily to an outdoor pool, by her husband, so that our treatments were changed. In giving massage of the back a distinct induration of the back muscles could be felt, much more noticeable on the left side than on the right.

In an effort to see if it would be possible to disperse this by absorption a few fever treatments were given by diathermy. The temperature was raised to 103° F. They were found to have a very depressing effect on the patient and no noticeable improvement was shown. However, they did help the menstrual periods, which had been scant and irregular for some time. Local diathermy was next substituted over the area where the most induration of the muscle could be felt. This brought definite improvement. The area of induration became less and muscle strength improved, though this might have been due to the persistent muscle training. Walking was first accomplished in water and in July she was able to walk thirty feet in this manner.

In August she was able to fully extend the right knee in water, although it was not until September that she was able to control head in water. It was in September also that she took her first few steps with a cane. By October she was able to take three steps alone. November proved to be unlucky for she took thirteen steps alone and stuck there. With the advent of December she was back at eleven steps, but increased to seventeen and then twenty-two. Body balance has steadily improved, though we are a long way from our goal. Weakness of the abdominals and the back muscles is the greatest handicap to be overcome. In walking the patient sways from side to side. The last muscle test shows improvement as many muscles that have been persistently absent now give a trace and poor. The abductors, tensor fascia, gluteals and right hamstrings are all able to overcome gravity. There has been return of all the foot muscles to fair and good strength. The quadriceps on both sides show decided gain, but do not take gravity yet. The adductors which have been persistently absent are now trace on the left and poor on the right.

This is the type of case that is so often turned down as hopeless and incurable, so that it remains for us to prove what Physiotherapy can do for what is usually considered a hopeless case.

Dallas, Texas.

The Correlation Between the Physiotherapy and Radiographic Departments in an Orthopedic Clinic

By Dora E. Fehlis, R. T., Carrell-Driver-Girard Clinic, Dallas, Texas, and Miriam Van Tassel

We must realize that the X-ray is a vital factor in making a correct diagnosis. It is not fair to expect the physician or surgeon to make even a tentative diagnosis of a condition or to prescribe any treatment until he is able to see exactly what difficulty is present. One often thinks of an X-ray as just a picture, regardless of whether it be a gall bladder, stomach, kidney or bone picture. There is a definite technique which must be developed to produce a "diagnosticable type of picture.

The difference in technique is that one tries to obtain the best bone detail by the elimination of soft tissue; this is done by lowering the KVP or penetration and increasing the time. It is very important to recognize the necessity of changing technique when one deals with different type of bone diseases and different aged people.

When fractures are suspected we use regular bone technique, but when there is a suspicion of a diseased part or a type of infection which might destroy bone tissue, such as a bone cyst, the KVP is lowered with the same time. Such conditions which increase bone tissue, such as old osteomyelitis, both KVP and time are increased. The various races demand a change in technique also. The darker skin types take a greater amount of penetration than the lighter ones. A difference must be made between the negro, Mexican, or light brown and the white.

It is easier to make a correct diagnosis from a dry plate than from a wet one as finer detail is evidenced.

From the Physiotherapist's standpoint, when a fresh fracture is ready for treatment, she feels that she may give a far more adequate and intelligent treatment if she has seen a picture of the fracture before and after reduction so that she may note the position of fragments, etc. As the treatment progresses it is important for her to know how much calleous formation there is so she may grade her treatment in accordance with that information.

If there is close cooperation between the physiotherapy and radiographic departments a great deal can be accomplished with little or no difficulty. There should be close harmony between the two departments at all times.

Often the Radiographer is called upon to be the photographer also. Photographic records are of the utmost importance and interest to the physiotherapist, especially in posture work. If the spine is marked plainly and correctly prior to the first treatment and in consequence thereafter, during the course of treatment, progress may be definitely noted. It is important that the same technique, i. e., the same distance and time of exposure, is used each time and it might be advisable to have the same person mark the spine so that there will be little if any deviation from the form previously used.

In photographing joint motion, the X-ray, Physiotherapy departments and the Brace shop of the clinic devised an instrument called the XPB board. This consists of a board covered with a black paper on which is a diagram of an arc with angle markings of 0, 45, 90, 135 and 180 degrees. The pictures are made by means of double exposure so as to get in both range of motions on the same plate. For example, in photographing elbow motions, the upper arm is laid parallel with the table, the XPB board is placed at right angles to that joint, the elbow is then fully flexed and the picture snapped, then the joint is extended to the fullest amount possible and a second shot is taken on the same place. Thus for industrial work and compensation cases adequate picture proof of motion is available.

In making X-rays of posture cases, especially those of Scoliosis and Epithysitis of the spine, it is important to make the picture upon an upright Buckey Diaphragm with the patient in standing position, barefooted and unstrapped so that she may assume her natural posture. The old method of taking the spine picture in a reclining position, i. e., in posture cases, has been discarded because when the weight of the body is removed from the spine and feet, there is a loss of true physiological and postural curves and the picture of the true scoliotic condition is not recorded.

In cases where there has been a great destruction of tissue including skin, nerves and bones, as might be evidenced in a compound, comminuted, gangreous fracture, it is of the utmost interest to be able to record this picture by a natural color plate which is a photograph of the part showing the tissues in their natural color. Following treatment by infra-red and UVR which in most instances causes a complete regeneration of tissue, a final picture shows marked contrast.

Perhaps one of the most important relationships between the two departments may be determined when absorption of foreign bodies and fragments of bones is to be determined or ascertained following physiotherapy treatments. The only way this may be definitely shown is by X-ray. One usually thinks of the two departments as separate institutions when in reality they are closely related.

Officers and Executive Committee of the American Physiotherapy Association, 1930-1932

President
EDITH MONRO.....Suite 101, 483 Beacon Street, Boston, Mass.
Vice-Presidents
JOSEPHINE L. RATHBONE.....332 Montclair Ave., Newark, N. J.
EMILY J. GRIFFIN.....21 Church Street, Montclair, N. J.
Treasurer
MABEL E. HOLTON.....
University Hospital, University of Michigan, Ann Arbor, Mich.
Secretary
CONSTANCE K. GREENE.....53 Burpee Road, Swampscott, Mass.
Members-at-Large
PAULINE MANSFIELD.....20 Maple Street, Springfield, Mass.
HAZEL FURSCOTT.....Fitzhugh Building, San Francisco, Calif.
Director Bureau of Appointments
CLARA M. EISENBREY.....360 Riverway, Boston, Mass.
Chairman Membership Committee
PAULINE MANSFIELD.....20 Maple Street, Springfield, Mass.
Chairman, Committee on Education
MISS MILDRED ELSON.....942 North Jackson St., Milwaukee, Wis.
Chairman, Committee on Publicity
CHARLOTTE MORRISON.....303 East Chicago Avenue, Chicago, Ill.
Chairman, Legislative Committee
MATHEA BOXETH.....
Department of Physical Therapy, Medical Center, New York, N. Y.
Advisory Committee
ELLIOT G. BRACKETT, M. D.....166 Newbury Street, Boston, Mass.
ARTHUR T. LEGG, M. D.....319 Longwood Avenue, Boston, Mass.
ERNEST M. DALAND, M. D.....483 Beacon Street, Boston, Mass.

All changes of address must be sent to the Secretary, Treasurer, Director Bureau of Appointments and General Manager of the REVIEW. This will assure delivery of important notices and of the magazine. No second class mail is forwarded.

EDITORIALS

Convention, 1932

The eleventh annual convention of the American Physiotheraphy Association calls us to Milwaukee, Wisconsin, June 27-30, 1932.

The chief business will relate to the standards of physical therapy training and the Bureau of Appointments as well as the election of new officers.

With so much of importance under discussion we urge that the members make every effort possible to attend.

EDITH MONRO, Chairman, Executive Committee.

Hear Ye! Hear Ye!

The Eleventh Annual Convention of the American Physiotherapy Association will be held in Milwaukee, Wisconsin, from June 27th to July 1st, 1932. This year we are meeting independently of the A. M. A. as that body is going down to New Orleans and that is too far from the center of our scattered membership. Therefore every effort is being put forth to make this Convention a tremendous success and I know of no better way than a 100 per cent attendance of the members of the Association.

The Local Convention Committee reports the reservation of Headquarters in the Pfister Hotel where we will be all together under one roof and where we are promised most excellent accommodations for our business meetings, lectures, exhibits and eats. Of course there are other places to stay but this particular hotel has been selected as being best adapted to our needs both as to rooms for meetings and reasonable rates.

We are promised some very interesting and quite expensive Exhibits of books, charts, photographs, new apparatus, etc., about which you will hear more later.

Then there is a perfectly fascinating day planned for Wednesday when we are taken to Madison, the State capital, for a special clinic on Poliomyelitis and also a visit to the Orthopaedic Hospital, with meals on the train going and coming, a regular picnic. This year there is a special treat for us, for instead of the Convention being all over with the banquet on Thursday evening the Chicago Chapter has arranged a busy and interesting day Friday inspecting hospitals and special clinics. Most of us will be going thru that city on our return home and this is too wonderful an opportunity to miss. Be sure to count that day as a real part of the convention time when planning your trip.

Read the entire program as it now stands. Of course there will be a few minor changes, but the general outline will remain.

Monday P. M.	Registration and Tea
Monday Eve.	Address of Welcome
	Public Health Nursing
	Spalding School
	State's Responsibility to the Crippled Child
Tuesday A. M.	Adult Clinic at the Curative Work Shop
	Industrial Surgery
Tuesday Noon	Officers' Luncheon
Tuesday P. M.	Business Session
Tuesday Eve.	Scoliosis
	Congenital Deformities
	Nerve Lesions
Wednesday A. M.	Short Business Session
	Trip to Madison
	Poliomyelitis Clinic
	Visit to Orthopaedic Hospital
Wednesday Eve.	Free
Thursday A. M.	Business Session
	Exhibits—Books
Thursday P. M.	Symposium—Abdominal and Pelvic Conditions
Thursday Eve.	Dinner
Friday	Visit to Hospitals and Clinics in *Chicago*

E. J. G., National Chairman, Program Committee.

Into virgin country five unsuspecting P. T.'s ventured. One by one, they traveled down their lonely paths until they reached their destination. Like young saplings they reached out toward each other eager to make associations. At last, they touched each other's out-stretched hand in friendliness and helpfulness. They met and a

nucleus of a chapter was formed. Then the necessary drawing up of the constitution and by-laws and Uncle Sam came to the front and carried this precious epistle to headquarters. A period of anxiety and the climax of acceptance and a new chapter was born.

Proud and dauntless the fledglings tried their wings only to find many strong barriers to be encountered. Ignorant of these dangers, yet saturated with ambition, they brave the numerous societies that seek to hinder their progress.

One does not fully realize the enormous amount of unethical proceedings that take place in a city. There may be one or more good substantial clinics carrying out the ideals of the American Physiotherapy Association, but likely as not, they are in the minority. We find so-called baths and various types of questionable treatment being carried on under the pretext of being physiotherapy.

Hydrotherapy properly conducted is essentially a part of physiotherapy, but we must be able to differentiate between that and turkish baths as given in hotels, etc. Are we to accept this type of thing any more than we would accept the substitute of slap-stick comedy for Shakesperean drama?

A short time ago a member of the A. P. A. left the services of a clinic to establish her own offices to be conducted strictly in accordance with A. P. A. ethics and regulations. The secretary of the state board of medical examiners summoned the P. T. to appear before him, charging her with practicing medicine. The defendant appeared before the plaintiff denying said charge and offering the ethics of the A. P. A. as sound proof. She also submitted the local and national constitution and by-laws for his education. She informed him that the American Medical Association approved of this organization. He smirkingly inquired as to what the A. M. A. was; stating that, in his opinion, it was nothing more or less than a social organization and not one for the interest and benefit of humanity.

The P. T. then inquired of his wishes. He said that it would be necessary for her to take the examination for license to practice medicine. She informed him that if that were passed satisfactorily then she indeed would be qualified to practice medicine. The M. D. then, without authority, other than self-invested, proceeded to quiz the P. T. Questions, which under ordinary circumstances she might have answered at least in a half intelligent manner, but at this time which seemed remote, were hurled at her, a few of which were—"What is an ion?" "What is meant by dehydrating alcohol?" "What is the formula for Nitric Acid?" "What is Avogadro's Law?" With this unexpected flow the P. T. was struck dumb until the examiner (?) arrived at the origin, insertion and action of muscles. Then she was in her element and he could not phase her. After the flood he continued to denounce her and placed her in the category of "quacks," calling to her attention the men who went around selling eye glasses and guaranteeing to remove cataracts in three days. He showed her photographs of these criminals and prints of checks they had received for their services. What was his purpose? Do you suppose that he sought to frighten her into admitting something which was false? She inquired as to why he did not follow up the real "quacks" and bathhouses, to which he replied, "Oh, well, we are getting after the big fish first." To which she responded, "Well, I am honored to think that you consider me a 'big fish.'"

Indignant and slightly flustrated, as any honest person might be after such an interview, the P. T. bade farewell and proceeded to continue with her duties as though the M.D. were non-existent. When this tale was repeated to several other M.D.'s they were convulsed with the absurdity of it and suggested that she pay no head to the outburst of the plaintiff.

The P. T. then prepared an article for the State Medical Journal covering the aims and qualifications for membership in the American Physiotherapy Association. She also had a personal interview with the secretary and editor of the State Medical Association with rather pleasant results, as he was favorably impressed with our objective. He assured us that he was behind us and would render aid and advise at any time. He suggested submitting our organization to the county medical societies of the state.

Plan are now in progress for this. Recent correspondence with the editor stated that if he were rather crowded for space in this issue he would write an editorial embracing the same. Time alone is a big factor. We are anxious to see what the re-action will be. Shall uneducated, untrained people do our work or shall it be done in a scientific manner? Something must be done and it seems that we as a group must be "the man behind the gun" in accomplishing the solution of this problem.

M. V. T.

The Crippled Child

THE HANDICAPPED CHILD AS A CAMPER

By Leah Thomas

A summer camp for crippled children is the happiest place in all the world. Camping means more to these children than to the average child who has been associating and competing with normal children throughout the year.

The going away from home to be independent brings the crippled child's world a little nearer to that of his brothers and sisters. To be able to talk of "roughing it," to eat out of doors in camping fashion, to sleep in a cabin, to stay up one night to watch the stars and moon long after grown-ups have generally tucked one in bed is such fun. To swim in a group where all need a little assistance is more enjoyable than being the exception where normal children swim and dive with little thought for one unable to attain such skill.

It is a great satisfaction to see how crippled children fit into a group with even more spirit in work and play than normal children. The crippled child enjoys his independence and freedom from constant parental care at home. These children live in a world for normal people and even though they face their problem bravely they meet discouragement on every hand and an inferiority complex so often results. At camp many handicapped children find for the first time in their lives that they are competing on equal terms in a group which is to them normal.

In one camp group which worked well together there were cases of slight heart defects, an orthopaedic post-operative still in a cast, one slight spastic with normal mentality, infantile paralysis and underweights or malnutrition. Normal children were sent for instruction in body mechanics as a preventive measure and these children formed the active group helping in projects where the other children needed assistance.

A word about the program for such a group. At Robin Hood's Barn we are a band of outlaws living in mediaeval England and wearing Lincoln Green. Archery tournaments cause great excitement and we might add are our greatest activity. We have no time for active games and we are too busy to think of competition in that form. Quiet and sitting games are enjoyed quite as much as active ones are among active children. Dramatics are enjoyed by all and skillful costuming hides every defect. For two years past King Richard's robe has covered a pair of crutches much to the inward joy of the owner.

In the morning we have handcrafts in the barn and carpenter work in the shop. We make Robin Hood figures, we dress dolls in mediaeval costumes and we have made for them their own English village with a real fort and beautiful Cathedral, protecting moat and Sherwood Forest. The reading hours are filled with stories of Robin Hood and Arthurian Legends. The music is correlated to this period, ballads and Gregorian Chants being favorites of the children.

The joy of attaining, the joy of succeeding, the joy of excelling and above all the joy of helping others less fortunate than themselves are joys unbounded among these children. In the environment of camp the crippled child has an opportunity to work and play and live with understanding among his fellowmen.

Ascutney, Vermont.

Valiant Souls

A successful American business of nation-wide proportions was built up by a man who, because of an accident, was never able to leave his bed. Facing the dual handicaps of poverty and permanent physical disability, he developed an institution that stands high in the list of business concerns.

Steinmetz, the miracle man who played with electricity as a child plays with a toy and brought the realization of untold dreams to the scientific world, was a hunchback, a dwarf, pathetically frail.

Roosevelt fought face to face with death from disease until well into the years of his manhood.

Elizabeth Browning, during all the years when she was giving the world the sweet fruits of her pen, never moved from her invalid's chair, excepting when carried in the devoted arms of her husband.

Lincoln was laughed at for his uncouth mannerisms, his abnormal feet, his awkward demeanor. Napoleon was a physical underling.

And so the story might go on endlessly from epileptic Caesar, down the ages past blind Milton and deaf Beethoven to our own day with its countless valiant souls who press on bravely despite tragic odds.

THE CRIPPLED CHILD IN TEXAS

By J. Moreland

Texas has available, through several sources, expert diagnosis and treatment for her crippled children whose parents are unable to send them to pay institutions. Throughout the state the Rehabilitation Commission gives assistance, and at Houston and Dallas Masonic organizations support institutions specializing in this work. In the Scottish Rite Hospital at Dallas, the members of the Junior League maintain the occupational therapy department. Also, in Dallas, members of the Rotary and Kiwanis Club help the crippled children of impecunious parents throughout the county by paying for their hospitalization and give financial assistance in other counties where the local clubs assume part of the responsibility.

The State Rehabilitation Commission assists children over sixteen years of age, by paying the fee charged for a doctor's examination, and by obtaining from the hospital a minimum charge for services. This latter expense the Commission does not pay, nor the charges for an operation. Although the children are not furnished maintenance, they may have paid their tuition in any school in which they can get training conducive to self-support.

In Houston, the local Shrine maintains a weekly Clinic at the Hermann Hospital and places the children accepted for treatment in that or the Methodist Hospital. The report for the fiscal year ending last November is not available, but the work has exceeded that done in the preceding year, during which 291 children were given attention. Eighty-six were new patients and the others were returned cases. To support this work, the Houston Shriners give a charity ball each year on Washington's

birthday, usually raising about $18,000.00. However, in the year just past that amount was inadequate, due to the increased number of patients, and considerable inroads were made (quoting my source of information) into "a very good reserve that we were fortunate in being able to dig into."

Hella Temple Shrine at Dallas established in November, 1923, what is now the Texas Scottish Rite Hospital. A rapid increase in the work done and, naturally, in the expenses caused the local Shrine to share its growing responsibility with the Scottish Rite Bodies of Texas. Gradually the latter assumed more and more control, until the hospital is now entirely under the auspices of the Scottish Rite Masons. They are the principal contributors to its maintenance, but voluntary contributions are also received from generously inclined Masonic organizations, from individuals, firms and corporations.

The buildings are fire-proof and, being constructed for the purpose they serve, they are well equipped. There is adequate accommodation for sixty children, at present, only white children, as there is no negro ward. The active staff of the hospital consists of a chief surgeon, an assistant chief surgeon, a resident surgeon, five graduate nurses, including the superintendent, one dietitian, eleven attendant nurses, two brace men, one office secretary, one occupational therapist, and one physiotherapist. The consulting staff consists of the foremost men in their respective specialties in the community.

The children, to be admitted, must be cripples under fourteen years of age, whose disability can be partially or totally relieved to the extent that they may be self-sustaining in after life. If they are suffering primarily from some other medical or surgical condition, they are not accepted, nor can they enter if not of average intelligence. They, of course, must be children of parents unable to pay for treatment elsewhere. These requirements are rigidly enforced with the rare exception of operations on children slightly past their fourteenth birthday. Occasionally, if hospitalization fees are paid in a general hospital in the city, the chief surgeon operates free of charge on an over-age case.

The children are examined at the weekly clinic and those who can be cared for at the time are admitted. Those not requiring hospital treatment are given instructions for home treatment.

Each child is photographed to show disability at the time of admittance, progress during correction, and final results at dismissal. Surgical cases always require radiographs, which are accessible during the child's stay in the hospital, and are later placed in a permanent file to form a record for possible future consultation.

The average time of a patient in the hospital is thirty-four days. This figure, of course, is made by some staying several months and others only a few days. Throughout their stay in the hospital, the children requiring physiotherapy are sent to that department and those who may be helped by handicraft are sent to the occupational therapy department.

After all possible corrections are made and the required treatments given, the children are returned home. Many of them are sent with instructions for the mother, or some responsible person, concerning home care. Frequently, this home care includes prescribed exercises, always in the cases of poliomyelitis. Some are dismissed permanently; others are expected to return for further surgical corrections, new braces or repairs, or a checking and probable change of exercises.

Actual numbers may give a more definite idea of the scope of the work being done in this hospital, these figures being available to me as physiotherapist of this institution. Reports from other hospitals have not been obtained. Since November 13, 1923, there have been 4,319 hospital cases and 9,074 cases seen in the clinic.

The 1930 yearly report was as follows:

Total operations	334
Plaster casts	860
Total patient days	19,830
Average number of patients per day	54
New braces made	384
Repairs on braces	455
Tractions	26
Frames made	11
Physiotherapy treatments in hospital	334
Physiotherapy treatments in out-clinics	237
New patients examined	372
Returned cases examined	1,200

Patients, both "new" and "returned" might find it impossible to reach Houston, Dallas, or other places where treatment is available were it not for the generosity of the railroads. Texas is so large, the cost of transportation might prove prohibitive, but four railroads carry the crippled child free of charge and six others give passes to both child and attendant.

And so, by a combination of charitable forces, the crippled child of Texas is enabled to attain partial or entire correction of his disability, even though he is the child of parents unable to pay for his treatment.

2201 Wellborn, Dallas, Texas.

CHILD CRIPPLES GET FULL COURSE AT MORTON HIGH*

ONLY SUCH GROUP IN STATE HOUSED WITH NORMAL KIDS

By Ruth De Young

Mary Jane, 12 years old, is walking this year for the first time in her life—slowly and falteringly, but her little legs are working just like other boys' and girls'.

"Oh," she exclaimed the other day, "It's so nice to be high up like other folks!"

It was her answer to the question of Miss Leona H. Fette, director of the orthopedic school at J. Sterling Morton High School, Cicero, who was making inquiry about the result of her recent treatment. This little girl is one of 81 children at the school who are learning to use their arms and their legs at the same time that they are acquiring their readin' and writin' and 'rithmetic. Mary Jane's case is typical of many another that has come under Miss Fette's care during the seven years of the school.

It has been proved repeatedly that it is unnecessary for handicapped children to remain prisoners in wheel chairs, but it takes years of scientific care to make it possible for them to walk with crutches and years more for them to make the transition to braces alone.

ONLY SCHOOL OF KIND IN STATE

There are well known schools in Chicago and elsewhere that care only for these handicapped children, but the orthopedic school at Morton is the only orthopedic school in Illinois that is housed under the same roof and directed by the same officials as a city or township high school. Miss Fette said this close association with the secondary school provides a complete curriculum for the little cripples, courses that a school run solely for handicapped children might be unable to offer because of the small demand. Another advantage is in the service that the high school students give for the asking in serving meals and assisting generally their less fortunate neighbors.

---

*Reprinted from the Re-Aides Post.

From kindergarten through the last year of high school these 81 boys and girls in the Morton orthopedic school receive treatment and care during school hours, each one under the direction of a private or a clinic physician. They are called for and taken home daily in busses furnished by the board of education with the exception of those children living at the greatest distances. In these cases two private cars call for and return the children.

CORRECTIVE EXERCISES GIVEN

During the day exercise and corrective therapy are administered to each child as the physician in charge of his case prescribes. Alpine rays and massage, rest hours for those who need it—all of these items come first on the program. Studies are pursued according to each child's ability to handle them.

The school is housed on the first floor of the Morton High School building. It was in 1924 that Harry Victor Church, superintendent of the J. Sterling Morton schools, took advantage of the state appropriation through action of the board of education to establish the orthopedic school. Miss Fette was called immediately to take charge. Her experience had been varied, for she had served as an instructor in the Columbia University Teachers' College, the Oregon Agricultural College, and during the war had been a reconstruction aide after an intensive training course in the Harvard Medical School.

In September, 1924, five pupils enrolled and one teacher assisted Miss Fette—this in contrast to 81 pupils today and a teaching staff of five. These instructors are Mrs. Olive Parkhurst, Miss Marion Muir, Miss Ann Dolezal, and Miss Stella Uehren.

FEW CLINICS AT SCHOOL

Children are admitted to the school only upon recommendation of their own orthopedic surgeon or after examination at any one of the large hospitals of the city. This is a change from the plan on which the school was first run when Dr. Henry Bascom Thomas of the department of orthopedic surgery at the University of Illinois Medical School conducted clinics at Morton.

"It is only occasionally that we have a clinic in Cicero now," Miss Fette explained. "The first in many months is to be held Oct. 26 under the auspices of the Cicero Rotary Club, which has assisted generously in the work of the school. Dr. Thomas is coming to conduct this clinic, when 14 pupils now in school will be examined and when any other crippled children in the township may be brought for examination."

The Morton Orthopedic School is grateful not only to the Rotary Club, but also to the Berwyn Kiwanis Club and the board of education, groups which have aided materially in making the little cripples happy. There's nothing that these boys and girls anticipate more than their annual Christmas party and their annual trip to the circus, both provided by the Berwyn Kiwanians.

CLUBS ARRANGE HOSPITAL CARE

Through their efforts a number of the children have been given medical attention gratis by Dr. B. H. Moore at the Shriners' Hospital. The Rotarians, through their crippled children's committee, headed in recent years by John Carlander and Ben Braun, have obtained care for some of the boys and girls at the Illinois Research Hospital.

Each member of the high school board of education has given personal attention to the orthopedic school and the handicapped children enrolled, Miss Fete said. George G. Tucker is president of this board and Oscar E. Rox, Henry Langner, John J. Sherlock, and Frank A. Svoboda are all members.

Infantile paralysis is responsible for the condition of most of the children in the school. Tuberculosis of the bone, which is not contagious, cardiac and the spastic cases constitute the bulk of the others.

It is the grouping of handicapped children in a school or a department of their own that has solved many of their difficulties, Miss Fette believes.

"In their social life, in their work, and in their play," she said, "they are competing with their equals; their handicaps are forgotten to a certain extent because all have them. We put the emphasis here on their strength, not their weakness."—Chicago Tribune.

A VISIT TO VANFOREANSTALTEN IN GOTHENBURG, SWEDEN

By Emmy Kylin

Having once had the privilege of spending an afternoon at Vanforeanstalten (in English, The Institution for the Crippled) in Stockholm, Sweden, and having been greatly impressed by the work being done there, I decided then to renew my visit at some future time. Such an opportunity came last summer when I again vacationed in Sweden, but this time instead of Vanforeanstalten in Stockholm, its sister institution in Gothenburg was the one visited.

Vanforeanstalten in Gothenburg is located in the outskirts of the city, away from the commercial and residential districts. Surrounded by beautiful wooded hills, it brings a sense of peace which is at the same time inspiring. Miss Anna Vogel, the director of the institution, a charming hostess, escorted me around the different departments. In a most interesting way she told me about the work they are doing in Gothenburg and the work among the crippled in Sweden in general.

For the care of the crippled, Sweden is divided into four districts with four separate but similar institutions. Vanforeanstalten in Hernosand, the youngest of these institutions opened its doors for service last July. It cares for the crippled in the North of Sweden. The others are located in Stockholm, Gothenburg and Helsingborg and serve the East, West and South districts respectively.

Each institution is composed of three main departments; (1) Orthopedic, clinic and hospital with physiotherapy department and brace shop; (2) A grade school for children who, due to their crippled condition, are unable to attend public school; (3) An occupational school where crippled young men and women prepare themselves to earn their own livelihood.

Although there is a complete independence between these institutions they have a common Board called the Central Committee of Swedish Institutions for care of Crippled, located in Stockholm. It is composed of five representatives from each district with the Professor of Orthopedic Surgery in the Medical school of Stockholm as permanent chairman. All important questions are referred to this Board, and it also forms the common voice before authorities.

Financially, the work among the crippled is supported through many different sources. The Swedish Riksdag and the Landstings (Landsting approximately equals State legislation in the United States) appropriate money for this purpose, communities contribute towards this work and there are also trust funds and other donations available.

At Vanforeanstalten in Gothenburg, Dr. Helge Camitz, one of Sweden's best known orthopedic sur-

geons is chief of the surgical staff. All patients are first admitted to the clinic, where examination is made and advice given by Dr. Camitz and his staff. Even children applying for the grade school and young men and women applying for the occupational school are examined by a Doctor at the clinic before they are enrolled in their respective departments.

From the clinic the patients are transferred to the different departments, according to the need of the individual.

The hospital is located in the same building as the clinic. It has a capacity of one hundred beds. Adult patients as well as children are accepted and all types of physical disabilities within the orthopedic field are treated, but no-one is admitted with disability so severe that treatment is futile. As in most hospitals, the majority of patients are cared for in the wards, which seemed very light and pleasant, but for those more fortunately situated, private and semi-private rooms are available. The children's ward which Miss Vogel permitted me to visit although they were quarantined with measles, was most attractive. Attached to the ward was a large balcony where the beds were wheeled out for the day. In spite of the measles (the quarantine was about to be lifted) the children looked robust and happy and had it not been for plaster casts, frames and braces, it would have been hard to believe that those red cheeked youngsters were ill.

Before I left the porch, Miss Vogel asked me to step to the edge of the balcony and look at the view. It was beautiful! Hills and hills, rocky in places and again covered with pine and leafy trees. An ideal place for little bodies to mend and grow strong.

The well equipped physiotherapy department includes departments for electrotherapy, actinic ray or Finsen as it is commonly called in Sweden, diathermy, heat and massage, muscle training and corrective exercises. In the hydrotherapy department all types of baths and treatments pertaining to hydrotherapy are given. All treatments are prescribed by the Doctors at the clinic, who keep in close contact with the work. Many of the patients are referred by private physicians but they too, before being admitted for treatmemnt are first examined by the Doctors on the clinic staff and treatment prescribed for them.

In the brace shop which also operates under supervision of the Doctors, all kinds and types of braces, protheses and special shoes are made. Several young men trained in the occupational school, work in this department.

The school for crippled children or "Schoolhome" as it is called in Sweden, was closed for summer vacation. It is necessarily a boarding school, for many of the children have their homes in the country. Children of school age physically handicapped but with good mentality, are accepted. Last year thirty-four children were enrolled in the different grades. Many of the children having finished grade school, continue their studies in the occupational school, but the intervening period before they have reached the required age, is usually spent in their respective homes. This prevents them from losing contact with their families and home surroundings.

Especially interesting was the occupational or trade-school. There, young girls were busy with dressmaking or making children's clothes, others were weaving and still others working in the millinery shop. Boys were learning many useful occupations such as printing, the tailor trade, making and repairing of shoes and the making of furniture. It was indeed a busy place and this in summer with many students away on vacation. Instruction is given in a variety of subjects and often, if the school lacks the necessary facilities, students are sent as apprentices to tradesmen in the city.

The choice of study depends upon the inclination of the student, but his or her particular handicap is also a deciding factor. Part time is devoted to academic subjects, which include a voluntary course in English. The majority of courses are three years. With few exceptions, the students live in the "home" which is located within the institution and connected with the school. The enrollment last year was around one hundred.

The question of employment for crippled folks in Sweden, as elsewhere, is a difficult problem. In order to aid the graduate of the occupational school in his or her efforts to obtain employment, a social service or curator department was established in recent years. It is connected with Vanforeanstalten as one of its many branches. Its primary function is to assist in the problems of employment, but this department also keeps in contact with the children after their graduation from the grade school, and with adult cripples. It also acts as a medium for financial assistance. Here is an excerpt taken from the 1931 report: "A watchmaker receives through this department, regular contributions from his home community to enable him to continue in the place where he started to work." Efforts are made through lectures and appeals to organizations and clubs to solicit their help and cooperation in employment of crippled people. Regular tours of inspection are made throughout the district; this to look after the welfare of the cripples and to advise and encourage them in their efforts towards self-support.

After having seen the activities in the different departments, Miss Vogel invited me into her own office. While talking of the work in which we had a common interest, she told me of a recent visit to the United States, during which both in New York and in Boston, she had had an opportunity to study methods used in the work among the crippled.

On a table in the office among other publications, was "The Crippled Child," our Mr. Edgar F. (Daddy) Allen's own magazine. Seeing that little magazine in Miss Vogel's office at Vanforeanstalten in Gothenburg made me feel that, in America, in Sweden or wherever our field of work may be, we are all united in a great enterprise, that, through better health and education, life may be fuller and happier for the physically handicapped.

Cleveland, Ohio.

CRIPPLING IS LARGELY PREVENTABLE

LET'S PREVENT IT

Reprinted by permission The International Society for Crippled Children, Inc., Elyria, Ohio

The International Society for Crippled Children estimates that there are in North America 500,000 crippled persons under 21 years of age.

Every year, it is estimated, 25,000 additional children are crippled, which, by that much, increases the already huge sum total of misery, illness, unhappiness and blighted lives. It also increases the economic burden which society must assume in providing, (a) special schools for the education, vocational training and guidance of these unfortunates and (b) facilities for their surgical, hospital and convalescent care and material relief.

It is a sad commentary on national efficiency that such a condition should exist, because a large part of this misery and expense might be avoided. Reliable authorities

estimate that thousands of these cripples are the victims of preventable diseases, while others are the victims of ignorance or neglect.

INFANTILE PARALYSIS

This scourge is the outstanding cause of crippling. It leads in practically every list of causes that has been compiled. No adequate method of preventing it has yet been discovered. However, with prompt follow up and the right kind of medical care, it is possible to avoid much of the crippling that it otherwise causes. When the victims are not adequately cared for, or fall into the hands of persons not qualified to give the best treatment, they must frequently drag through life, a sacrifice to ignorance or neglect.

The epidemic of infantile paralysis which swept over every state in the Union recently took its toll in thousands of communities. On the basis of information at hand it is safe to assert that far too many of these places have made no adequate attempt to discover all victims of the disease and to see that they receive correct treatment. Where persons have been employed for such follow up, excellent results have been secured. *What has been done in your community?*

Your State or local Health Department, the United States Public Health Service, Washington, D. C., or the International Society for Crippled Children, Inc., Elyria, Ohio, will be glad to give you information about the work done by the most progressive communities in caring for the victims of this disease.

TUBERCULOSIS

Tuberculosis is one of the preventable diseases! Nevertheless we must regretfully admit that it is the second most important cause of crippling. Tuberculosis of the bones and joints maims and disfigures hundreds of children annually. It is certain that great improvement can be effected and much suffering and deformity prevented in many cases if children who contract this disease receive prompt and adequate treatment. More important still, it is equally certain that there are hundreds, if not thousands, of sufferers from tuberculosis who would never have become ill from it if their health had been properly protected.

The drinking of milk from tuberculous cows is one of the important causes of tuberculosis of the bones and joints and it is estimated that probably 45% of the population of the United States is served with a milk supply that is not under sanitary control, while much of the rest is far from being safely protected. By permitting children to drink milk which is not properly pasteurized, boiled or certified, society adds to the dangers which surround them and makes it harder for them to grow up free from crippling and illness.

Every community should safeguard its milk supply by (a) sanitary supervision and inspection of dairies, (b) requirements for pasteurizing the milk supply and (c) elimination of all tuberculous cattle as shown by tuberculin tests made at least once every year.

The United States Public Health Service, Washington, D. C., has prepared a standard milk ordinance for safeguarding local supplies and is prepared, in cooperation with state and local health departments, to advise any community regarding measures for securing a safe milk supply. This branch of government service your State Health Department will supply you with or information regarding pasteurization, tuberculin testing, etc.

In addition it is most important that every community should have organized clinic, nursing and follow up service, as well as available sanatorium care, for the discovery, treatment and prevention of the spread of human tuberculosis.

RICKETS

Rickets, another preventable condition, is again one of the major causes of crippling. This condition follows lack of proper food and environment, including sunlight. There is practically no place in the temperate zone, which can be called a city or even a town, where conditions are not favorable for the development of rickets in children, and it is prevalent in many country districts. It is almost a universal problem in this or colder climates.

There is conclusive evidence that excellent results in reducing or eliminating the bad effects of rickets, can be secured through the use of adequate diets and the administration of cod liver oil and sun baths. These measures can be made more widely effective in combating this disease and its results if there is a competent health officer who has under him an adequate nursing staff which renders prenatal, infant and pre-school services in cooperation with parents and family physicians and all interested in improving standards of living.

The United States Children's Bureau, Washington, D. C., or your State Health Department, will send you further information on this subject if you need it.

OTHER CAUSES OF CRIPPLING

It is not possible to list all the less frequent causes of crippling. Perhaps the two most important are: (1) injuries at birth, and (2) injuries from accidents. The protection of mother and child prior to, at the time of and immediately after childbirth is coming to be generally recognized as one of the community's most important interests. But unfortunately these communities which have available for mother and child adequate advice as to the expectant mother, thoroughly competent medical, nursing and hospital care at time of confinement and satisfactory follow up during the important period immediately after birth, are still in the minority. Every city, village and county should see to it that it is well equipped in these respects and that there is a well organized local plan in operation for the prevention of accidents.

THE BEST WAY TO SOLVE YOUR HEALTH PROBLEMS

The solution of such health problems as those mentioned above, as well as others equally important, depends on competent full-time health supervision, and nursing service. Your community needs a well trained health officer on full time, and adequate well trained public health nursing service. (One nurse to every 10,000 population being the smallest number that should be considered for service, and one to every 2,000 or 3,000 suggested as ideal.) Where a town is too small to afford such service it is possible to secure it on a district basis. Your State Health Department will gladly cooperate with you in laying out plans for community health work.

PROGRESS IN THE EDUCATION OF CRIPPLED CHILDREN

By Harry H. Howett, A. M.

Let Us Build a Permanent Bridge across the Chasm Which Separates What We Know about the Education of Crippled Children and What We Do about It; and Let us constantly Traverse It so as to Improve Both the Science and the Art of Education.

Reprinted by permission of The International Society for Crippled Children, Inc., Elyria, Ohio.

Part I

A DEVELOPMENT OF CENTURIES ORIGINS

Education as an art has been known, in China at least, for over four thousand years, while education

as a science, strictly speaking, has its origin in the last century.[1]

Our earliest dependable information in regard to the antiquity of education, however, comes from the Greeks of the sixth century B. C., beginning when Pythagoras founded the first University at Crotona. (530 B. C.) During the fifth and fourth centuries following, their intellectual leaders made a profound search for the sources and nature of knowledge. The Ethics of Plato and Aristotle may be said to be the first studies of their kind ever made which were based upon the principles of psychology.

In this two hundred year period, the world was given its first records relating to man's serious efforts to explain the origin of knowledge and virtue. It was contended that knowledge came from "physical sensations," from "innate ideas" and from the "intellect."[2] The research of these early philosophers, psychologists and teachers, was mostly deductive, but Aristotle approached the inductive method of study and gave the world its introduction to what is now so commonly known as science. During this period, "Hippocrates, the Father of Medicine, and surgery******made the cripple one of his chief concerns. There were sun cures in those days as well as now. There were cures of club feet and betterments of lateral curvatures****." [3]But no record seems to be found of the interest of the general public in the cripple. Deformity was antagonistic to the Greek ideal of beauty and perfection. Education of defectives as such was unknown in the ancient world.

As every careful student of history knows, the same advancement in regard to the primary cause of the universe, and man's place and purpose in it, was not reached again by the great scholars of the race for two thousand years. Medicine and surgery showed new life in the sixteenth century; and in the early part of the seventeenth century A. D., we find Descartes, the founder of modern philosophy, struggling with the same essential psychological doctrine of the native function of the human mind.[4] While many changes had been made, through that long period of years, in the art of education, no real constructive progress is indicated in the field of education as a science.

The period of two hundred years which followed the life of Descartes was another golden age of learning. During this time, the first steps were made in the science of education. The chief contributors were Locke, Bishop Berkeley, Rousseau, Kant, Pestalozzi, Herbart, and Froebel. It is undoubtedly not incorrect to give credit to Rousseau and Pestalozzi for having laid the practical foundations upon which our present science of education has been built. From the work they did and inspired, in the middle of the eighteenth century, we have finally learned to derive experimentally the facts from which all new movements in school matters, methods and procedure are initiated.

EDUCATION OF THE MASSES

Education, until very recent times, was for the benefit of the few. The process of giving systematic educational training to the masses is another human development which has been dragged out over the centuries.

Our revolutionary forefathers, we are reminded, were for the most part illiterate. Education in their day was for the rich only.[5] A very hard "fifty-year fight" was staged, by hundreds of private associations, to establish the public school system of the United States. When it did come, it was by slow degrees; by getting small state subsidies, local option in school taxes, compulsory education for the indigent, etc.[6]

It is to be remembered too, in this connection, that education through the centuries had been an individual matter. Before all children could be taught in a constructive way, some method had to be found to teach pupils in groups. This was done through the monitorial system, introduced into this country by Joseph Lancaster of England in 1818.[7]

Part II

CORRECTIVE EDUCATION

FIRST STEPS

A careful study of the work of Rousseau and Pestalozzi shows that they were social, educational reformers. They even advocated that schooling should be given to the defective and delinquent, as well as to all normal children. They were connected in time, and possibly by actual contact, with some of the earliest teachers of deaf children.[8] Although the manual alphabet for the education of the deaf had originated in Spain in 1620, the first schools for them at Bordeaux and Paris (previous to 1780) were just developing, a hundred years later, when Pestalozzi was yet a young man.

While it seems that the most difficult task any teacher could undertake would be the instruction of a congenitally deaf and dumb child, nevertheless, special training of deaf pupils preceded that for all other defective and handicapped children. The first schools for the blind and feebe-minded were started in Paris in 1784 and 1798 respectively.[9]

It is not difficult to understand why the progress of educational development for physically handicapped persons has been even more retarded than that of the children of the masses. Cripples have been considered by the general public, in the years gone by, as "enemies of society," as "jesters," and treated as "fools" and "villains." In such a public attitude there was little encouragement for their education or even their physical or social improvement.[10]

One of the special reasons why corrective education advanced and spread so slowly is that it was carried on by its founders and earliest teachers as a trade secret or business monopoly.[11] While schools for the deaf grew up slowly in other parts of Europe, it was two hundred years before the first one was established in the United States, at Hartford, Connecticut, in 1817.[12] As in Europe, it was soon followed here also by schools for other types of handicapped children.[13]

MODERN SPECIAL EDUCATION

We have already noted that the development of corrective education tended to lag behind the slow advancement of plans for the education of the masses. All such schools originated with very small groups of private per-

[1](a) James Hastings, Encyclopedia of Religion and Ethics, Charles Scribner's Sons, New York, 1924, Vol. 5, p. 184 (P. J. Maclagan). (b) Prof. Wm. McDougall, "Our Neglect of Psychology," The Edinburgh Review, Vol. 245, No. 500; April, 1927, p. 299.

[2]Arch. B. D. Alexander. A Short History of Philosophy, James Maclehose and Sons, Glasgow, 1908, p. 106 (The Macmillan Co., New York).

[3]Robert B. Osgood, M. D., "Progress in the Treatment of the Crippled Child," The Crippled Child, Vol. V, No. 2, July-August, 1927, Elyria, Ohio, p. 28.

[4]Alexander, Op. Cit., p. 198.

[5]C. M. Elliott, "Some Problems in the Training of Teachers for Special Schools," The Chicago Medical Recorder, Vol. XLIX, No. 4, April, 1927, p. 136.

[6]Ellwood P. Cubberley, Public Education in the United States, Houghton Mifflin Co., 1919, Boston, p. 119.

[7]The Encyclopaedia Britannica, Vol. XVI, p. 147, New York, 1911.

[8]J. E. Wallace Wallin, The Education of Handicapped Children, Houghton Mifflin Co., Chicago, Illinois, 1924, p. 8.

[9]Wallin, Op. Cit., pp. 10 and 13.

[10]Henry Edward Abt, The Care, Cure and Education of the Crippled Child, The International Society for Crippled Children, Elyria, Ohio, 1924, p. 9.

[11]Edwin S. Thompson, "The Deaf," Paul Monroe's Cyclopaedia of Education, New York, 1911, The Macmillan Co., Vol. I, p, 257.

[12]Edward E. Allen, Education of Defectives, 1899 and 1904, L. B. Lyon Co., pp. 3-29.

[13]Wallin, Op. Cit., pp. 10 and 25.

sons interested primarily in local charitable and educational programs. This type of work for crippled children started with the Kurz Foundation in Bavaria in 1832, but was taken over by the state in 1844.[14] Cripples had been given public attention previously from the custodial standpoint, but without any plans for their education, in the First Poor Relief Act of England in 1601.[15] Other asylum and school projects were started in London in 1840 and 1851, in Paris in 1853, and again in London in 1862. Probably the next private school was conceived in 1861 and founded in 1863 by Miss Cornelia and Dr. James Knight of the New York Society for the Relief of the Ruptured and Crippled.[16]

The rest of the nineteenth century shows a steady progress in work for cripples of tender age, in both Europe and America, but very little for disabled adults. Italy's first efforts were made at Turin in 1871, followed by Denmark in 1872, Sweden in 1885, and Russia and Norway in 1892.[17] A number of efforts, less known in this country, were made in this period in Switzerland, in some of the German states and in Ireland. The Hospital for Sick Children in Toronto, Ontario, Canada, was founded "as a work of faith by a committee of ladies" in 1875; this same committee opened the Home for Incurable Children in 1899.[18] In Denmark and Sweden we find the beginning of industrial work for adults, and efforts which have led to the more general use of the important science of physiotherapy which had been known, in a more restricted way, for many years.[19] Many of these private schools were later supported publicly, in whole or in part, by the states in which they were located. In the United States this tendency toward support from the public soon led, in the regular public school system, to the organization of "special classes" for the deaf, blind, incorrigible, crippled[20] and feeble-minded. Corrective education came to be known, therefore, in this country, as "special education."

In Canada special education seems to have started in 1910 in the Province of Ontario with children of defective metality, when two classes were opened in Toronto and one in Hamilton. By 1914, the Ontario Parliament was persuaded to pass the Auxiliary Class Act. Under this statutory provision, during the next four years, 16 classes were formed, 46 teachers received special training for this work, and Dr. Helen MacMurchy, Chief, Division of Child Welfare, Canadian Department of Health, published a book entitled "The Organization and Management of Auxiliary Classes." By 1927 there were 161 Auxiliary Classes in Ontario, six of which were composed of pupils with orthopaedic handicaps; the province subsidized the classes and maintained a special Inspector to promote and standardize the work. More recently additional work for crippled children has been carried on by the Daughters of the Empire, Women's Institutes, the Junior Red Cross, Rotary, Kiwanis and the Imperial Shrine. Schools for crippled children are now conducted at Toronto, Montreal, Calgary, London, Ottawa and Regina.[21]

Facts are not at hand or space available to give a proper account of the recent progress of special education in Europe. Suffice it to give here a brief paragraph relating to the work in Sweden, England and Germany. In the first of these countries there are at least three noted schools conducted at public expense by specially trained teachers. During the last decade "well over 2000 pupils have passed through" these educational institutions. Education for the physically defective children of England and Wales is provided for in 243 different schools. In 1926, 20,000 pupils made up the average attendance at these schools.

"The aim of special schools is first to give the pupils a happy school atmosphere, and then by specially selected methods to endeavor to 'catch up' along the lines of normal elementary education." In Germany and Austria there are respectively 114 and 12 institutions for cripples. Over eighty of these contain schools and it is the policy governing them that education and treatment should be carried on together. The number of physically handicapped adults is at least twice that of child cripples. The latter is estimated at 75,183 of whom 68,198 are mentally sound. The compulsory school law applies to cripples. It is estimated that there are 6423 who are of compulsory school age and who have minds capable of taking education who are not receiving it. The teachers are certificated by the state and the whole system of special education is a matter of concern to the government.[22]

The whole subject of modern special education, it appears from what is set forth here, could be greatly advanced by further well attended and conducted international conferences which would set forth the progress made in this field of education during the last 25 years and plan for its proper further development.

Part III

Education of Crippled Children in the United States in Private Schools

Following the work done in New York City by Dr. Knight and his daughter, a school was opened by the New York City Children's Aid Society in 1890 and known as the Rhinelander Industrial School for Crippled Children. The next noteworthy school work was started in Boston in 1893-4, in Chicago in 1897, and in New York City and in Cleveland, Ohio, in 1900. The most famous of these early schools was the Boston Industrial School for Crippled and Deformed Children.[23] It was patterned after work exhibited at Milan, Italy, to Dr. Edward H. Bradford of Boston.[24] The start in Chicago was made by Mrs. Emma Haskell who succeeded in having the public schools assume the responsibility within two years thereafter.[25] The Federation of Jewish Philanthropic Societies organized the Crippled Children's East Side Free School in New York City; Mrs. Arthur Elliott Fish, assisted by Miss Florence, Daughter of Dr. Egbert Guernsey, opened the William H. Davis Memorial (Walter Scott)[26] Free Industrial School for Crippled Children in the same city; and a group of girls

[14] Evelyn M. Goldsmith, "Crippled Children," Paul Monroe's Cyclopaedia of Education, New York, 1911, The Macmillan Co., Vol. II, p. 230.

[15] Abt, Op. Cit., p. 9.

[16] (a) Osgood, Op. Cit., p. 29. (b) Goldsmith, Op. Cit., p. 233.

[17] Dr. Iv. Rummelhoff, "The Care of the Crippled in Norway," The Cripples' Journal, Vol. III, Oct. 1926, Pohn Bale, Sons & Danielsson, London, W. 1.

[18] (a) Fifteenth Annual Report, The Hospital for Sick Children, 67 College Street, Toronto, Canada, 1925. (b) Twenty-fourth Annual Report, The Home for Incurable Children, 152 Bloor Street East, Toronto, Canada, 1923, p. 10.

[19] Osgood, Op. Cit., p. 28.

[20] Evelyn M. Goldsmith, "Schools for Crippled Children Abroad," 1909, Report of Federal Commissioner of Education, Vol. I, p. 507.

[21] (a) S. B. Sinclair, Ph. D., "Special Training for School-age Children in Need of Special Care," Publication No. 16 of Section III, Canadian Council on Child Welfare, 408 Plaza Building, Ottawa, Canada, 1927, pp. 7, 8, and 9. (b) Mary L. Ebersole, Bureau of Information, International Society for Crippled Children, Elyria, Ohio, 1927.

[22] (a) Cripple's Journal, Vol. IV, No. 13, July, 1927, Carnegie House, 117 Picadilly, London, England (For Sweden), pp. 76-78, and (For England) p. 32, also Vol. IV, No. 18, October 1928, pp. 38, 41, 68, 69, (b) Manual for the Care of the Cripple. Prof. Dr. Konrad Biesalski, Leipsig, Published by Leopold Voss, 1926, The Crippled Child, Vol. VI, No. 6, April 1929, pp. 154-155, by Dr. Hellmut Eckhardt.

[23] (a) Abt, Op. Cit., p. 10. (b) Edith Reeves, Care and Education of Crippled Children in the United States, Russell Sage Foundation, New York, 1914, p. 60.

[24] "In Retrospect," a pamphlet published by the School, 241 St. Botolph St., Boston, in 1923.

[25] Frank G. Bruner, Report of Special Schools, Chicago Board of Education for 1922-3, p. 103.

[26] Known since 1924 as the Walter Scott Free Industrial School, Inc. See "History of Our School," published by the School, 55 West 68th St., in 1924.

from eight to ten years old established the first kindergarten for crippled children at Alta House, Cleveland, Ohio.[27]

School authorities did not reach out for the responsibility of corrective education, but were led to accept the work by the entreaties of social workers, physicians and philanthropists. With the exception of the Boston Industrial School and the Walter Scott Free Industrial School, the work done by these early private classes, nevertheless, has been taken over in whole or in part by the public school systems of their respective cities.

The first private school for crippled adults was opened in New York City in 1912.[28] One of the most remarkable private schools in this country is now in operation in Philadelphia, and known as the Widener Memorial School for Crippled Children.[29] At the present time practically all private hospitals, convalescent institutions and homes for crippled children have educational features in connection, but most of this school work in them is supervised and supported by public school authorities. There were in 1924 about 150 such schools in the United States.[30]

Development of Special Public Education

The first public school class for crippled children in the United States, omitting mention of the Minnesota State Hospital for Crippled and Deformed children,[31] was arranged for in 1899 and opened by the Board of Education of Chicago in 1900.[32] This work was undertaken largely out of sympathy and for almost wholly humane reasons.[33] It was not in the beginning thought of as an advanced step in the development of scientific pedagogy or as "corrective" or "special" education.

In 1906, following a cooperative conference of the representatives of the private schools, the Visiting Guild of the Ethical Culture Society, the Children's Aid Society and the City Board of Education in New York, the city public school system took over the payment of the teachers and furnished the school room equipment for two of the private schools. The next year classes were started in several of the public school buildings.[34]

A Decade of Real Progress

From these public and private initial efforts, there had developed by 1914 in this country an interest which brought to both types of schools for crippled children 2862 pupils, 988 of whom were in 51 public school classes in Chicago, New York, Cleveland and Detroit.[35] Various private agencies had not only been caring for the education of crippled children, but many of them after demonstrating the ways and means by which such work could be effectively done, were persuading the public school authorities to institute special educational facilities for such children.

The survey completed in 1924 by the International Society for Crippled Children made it possible to show clearly the progress made in the preceding ten years intervening since the national study was made by Miss Edith Reeves for the Russell Sage Foundation. In the latter survey it is shown that there were at least 6225 pupils getting special education in 1923-4, in 82 special schools having over 200 classes.[36] The minimum number of teachers was 311 for crippled pupils under 21 years of age. It is further estimated that the average salary of the teachers had advanced from $900 to $1300 per year. Persons engaged in teaching in military and civilian school work for adult cripples are not included in these figures. The increase in the number of teachers in this ten-year period was over 150 per cent, and the gain in the present decade undoubtedly will be very much larger.[37]

New York in 1925 had a total of 165 teachers employed in the state to instruct crippled children. Full-time service was given by 152 of them.[38] As there were only 67 such teachers in 1914, this enumeration tends to bring ample verification to the above estimated increase for the whole country. In Ohio there was a growth in the number of teachers too, in the same period of time, from 6 to 63.[39] Figures could be taken from statistics in several other states to show conclusively that special education was definitely established in this decade as a part of the school system of the United States.

Modern Progress

Schools for crippled children have now generally introduced real corrective education which in many places is carried on in special buildings with special equipment for elementary pupils. The next step is to provide as well for those physically handicapped children capable of taking courses in technical and higher schools.[40]

The criterion of admission in the leading large schools is, "Has the child a physical handicap which will be an impediment in industry and which the crippled children's school can correct or at least improve."[41] The door of the class for corrective physical training swings "both ways, making admission into the special class easy for those who stand in need of special instruction, and return to the regular grades just as easy for those who are able to profit from contact with the typical child."[42] Yet it must be said that methods of educating cripples have advanced, from the nation-wide standpoint, too slowly. Only recently have any organized efforts been made to use the knowledge we have on the subject for the benefit of all parts of the country. Henry Edward Abt thought in 1924 that only about two per cent of crippled children had the benefit of special corrective education. Therefore, a great many crippled children are yet doubly handicapped because of a lack of proper facilities for their education. We have almost wholly overlooked the psychology of the cripple and the public attitude toward deformity. The cripple even needs protection often from the blighting effect of the mental attitude of his own parents toward him. Let us remember the fight that was made to establish a public school system in the United States and re-enact it in behalf of our physically handicapped pupils with the same vigor, determination and much more dispatch.

The course of study in special classes and even for home and bedside instruction is divided in the better

[27] "A Description," 1889-1924. The Association for the Crippled and Disabled, published by the Orthopaedic Center, 2233 East 55th St., Cleveland, Ohio, 1924.

[28] Reeves, Op. Cit., p. 231.

[29] (a) Reeves, Op. Cit., p. 173. (b) Abt. Op. Cit., p. 140.

[30] Abt. Op. Cit., p. 67.

[31] Oscar M. Sullivan and Kenneth O. Snortum, Disabled Persons, Their Education and Rehabilitation, The Century Co., New York and London, 1926, p. 12.

[32] Mrs. Edith Reeves Solenberger, "Public School Classes for Crippled Children," Federal Bureau of Education, Bulletin No. 10, 1918, p. 9.

[33] Bruner, Op. Cit., p. 103.

[34] Goldsmith in Monroe's Cyclopaedia of Education, Op. Cit., p. 230.

[35] Reeves, Op. Cit., p. 56 and Table VII, pp. 134-6.

[36] Abt, Ob. Cit., p. 67.

[37] Edith R. Solenberger, The Cripple, Vol. V, No. 18, October 1928, pp. 49-50.

[38] J. S. Orleans, "Survey of Educational Facilities for Crippled Children in New York State." University of the State of New York, Bulletin No. 835, Albany, New York, Sept. 1, 1925, p. 10.

[39] Mrs. Hazel Hadley, "Ohio and New York Compared on Work for Crippled Children," Better Schools Bulletin of the Ohio State Department of Education, Columbus, Ohio, May, 1926, Vol. VII, No. 2.

[40] Henry C. Wright, Report of the New York State Commission for Survey of Crippled Children, Legislative Document No. 100, Albany, 1925, pp. 30 and 31.

[41] Bruner, Op. Cit., p. 112.

[42] Dr. Charles Scott Berry, Report of the Department of Special Education, Board of Education, Detroit, Michigan, 1925, p. 5.

schools systems into academic training, physical rehabilitation and industrial operations. (a) The first is about the same as in the curriculum for pupils of normal needs, and in spite of emphasis put on the other two divisions of the curriculum, remains the most important part. The aim in this work is to keep pace with the corresponding regular school grades, and to prepare for high and technical school work.[45] (b) The second division of the course of study is composed of physical exercises for the educational, corrective and curative values, including physio-, hydro-, helio-, and occupational therapy, and is extended also to the consideration of special diets, rest cure, and even to social service planned to bring into cooperation with the school authorities the parents, visiting nurses, surgeons and hospitals. The actual handwork for young cripples is about the same as for normal pupils, but as the adolescent age is reached, it is gradually changed to include (c), the third phase of the curriculum and becomes definitely prevocational and vocational in character. Effort is made to train intensively the normal parts of the cripple's body and to seek out and put into use his special talents.[46] There is a great psychological effect to be had in the pride which comes as a result of seeing practical things accomplished better than others can do them because of such specialized training, which is now being demonstrated in various activities from kindergarten practices to loom-work, simple garment making, sheet metal work and decorative designing.[47]

Bus transportation at public expense is generally in practice, each bus having an attendant in addition to the chauffeur. The accompanying cost is usually the big item of expense in the education of crippled children in public schools. It is considered best for the Board of Education in large cities to own its own busses so that they may be used at any hour of the school day for trips to clinics, hospitals, or for visits to places of special information or recreation.[48]

There has been and still is a great dearth of teachers properly qualified by temperament, personality and training to instruct physically handicapped children. Persons planning to take special training for this type of service should have had a very good general education and successful experience in teaching pupils of normal needs. The Michigan State Normal College lays down these stipulations: "(a) At least one year of successful teaching experience with normal children; (b) A state life certificate or its equivalent in college training (two years beyond the high school); (c) One year of special technical training in the field selected in addition to the two years mentioned in (b)."[49] Before this practical handicap of untrained teachers is satisfactorily overcome, there must be a greater appreciation on the part of school boards and superintendents, generally speaking, of the technical importance of specially trained teachers and a consequent willingness to pay ample compensation for their services. Only then will the existing training schools be able to satisfy the demand for persons to teach in the special classes and schools of this country.

Powers Granted to School Authorities

It seems now to be established definitely that in order to properly educate all the crippled children, it is necessary for the state to assume the supervision of the whole matter. It should bear part or all of the "excess cost" of such public instruction which averages about $200 per year for each pupil who does not have to board away from his own home in order to attend the special class or school.

Missouri provides by law for the payment, on the part of the state, of approximately $75, Minnesota $250 and Illinois and a few other states "not to exceed" $300.[50] The laws of some states provide for a census or registry of crippled children. The 1927 law providing for this in Michigan allows the school enumerators five cents for each crippled child reported, and the one in New York counts the children from "birth to eighteen years of age."[51]

The law in California, passed in 1927, provides for (a) local inter-district cooperation and local cooperation with the state civilian rehabilitation service, (b) special classes and home visiting teachers, (c) transportation, (d) social service, (e) individual vocational counseling and guidance and occupational training, (f) local standards set, supervised and enforced by the state department of education, and (g) costs distributed on an equitable basis to the local school district, the county and the state.[52]

Three Exemplary State Programs

Foreign countries and the commonwealths in Canada and the United States are realizing gradually that it is wiser political economy to spend money for the educational practices which make the child a social asset than to assume the mounting costs of supporting eleemosynary agencies and institutions. It is in the consideration of this, that our recent legislation for corrective education has had its inception and development.

In 1921 Ohio enlarged her state statutory provisions for the education of the deaf and blind to include the crippled, both children and civilian adults. The present "Ohio Plan" provides for an Inspector in the State Department of Education to officially examine into the work of special education in all parts of the state. This official stimulates local authorities to make full use of the provisions of the law, reports on the standards of work done in special education, and assists the State Director of Education in carrying out the details of the administration required by the law. Through her office, the excess costs are paid to local boards of education which are limited annually per pupil by statute of $300 for educational, and $250 for living expenses.[53]

For the school year 1928-9, there were 62 special classes in public school buildings in 27 different cities operating under this law; there were among these 4 special schools in as many cities; and in addition, 15 special classes in hospitals or convalescent homes which are under the control of the respective local boards of education in eight cities. Seven of these eight cities have special classes in both hospital buildings and in public school buildings. It has been found that the 1100 pupils who received this special education were taught by approximately 75 teachers in 27 different cities, 70 of whom are public school employees.[54] There is but one private school for crippled children in the state. Fifty out of the 88 counties have home-teaching pupils, making a total of approximately 1200 pupils. Transportation costs run from 32 to 79 cents per day.[55]

---

[45]Jessie L. Stevenson, "Crippled Children in Chicago," A Survey Made for Rotary Club of Chicago by the Chicago Community Trust, 10 South LaSalle St., Chicago, 1924, p. 69.

[46]Miss Jane A. Neil, "Chicago's Laboratory, The Jesse Spalding School for Crippled Children," Bulletin No. 6. Vol. VII, June 1927, published by the Municipal Tuberculosis Sanitarium, Chicago, Ill., p. 10.

[47]Peter A. Mortensen, "Chicago's Public School Classes for Crippled Children." National Education Association Proceedings, 1923, p. 916.

[48]Bruner, Op. Cit., p. 107.

[49]Elliott, Op. Cit., p. 138.

[50]Sullivan and Snortum, Op. Cit., p. 129.

[51]Wright, Op. Cit., p. 101.

[52]Senate Bill No. 630 passed by the 1927 session of the California Legislature.

[53]Ohio General Code, 1925, sections 7755, 7756, 7758, 7761, 7803.

[54]Ebersole, Op. Cit.

[55]Hadley, Op. Cit. and Ebersole, Op. Cit.

Similarly, in New York State, the school year 1925-6 marked the beginning of an important state program for the education of crippled children. The law which went into effect at that time, creating an Advisory Commission for Physically Handicapped Persons, was followed the next year by an administrative order providing for a Crippled Children's Bureau, so that the work for children could be separated from that for crippled adults. This bureau is required by law to "stimulate all private and public efforts designed to relieve, care for, cure, or educate physically handicapped children *** and to use all means and measures necessary to adequately meet the physical and educational needs of such children, *** to provide *** home-teaching, transportation, scholarships in non-resident schools, tuition or maintenance and tuition in elementary, secondary, higher, special and technical schools *** in whole or in part from funds of the department ***."[54]

The Advisory Commission and the Crippled Children's Bureau are interested in coordinating all the work of the state which relates to crippled children, which now includes, from the strictly educational standpoint, 4 special schools and 130 special classes for crippled children, having an enrollment of 3086 pupils who are taught by 170 teachers. All, except one special school in New York City with 50 pupils and 3 teachers, and 9 special classes with 11 teachers at Port Jefferson, are supported and supervised by the regular public school authorities of the state. Fourteen cities have special educational advantages of this character, and 62 special classes are found in hospital and convalescent homes in thirteen of these cities.[55]

The State of Michigan, it appears, is the first to declare by statute the policy of the state "with reference to crippled children." "It shall *** care for crippled children in the same manner generally as it cares for the deaf, dumb, blind, feeble-minded, epileptic, insane and other unfortunates and more especially to locate, examine, treat, care for and educate such crippled children as herein provided, such policy being based not only on humanitarian but on economic considerations."[56]

This act puts the administration of its provisions in the hands of a permanent commission somewhat as do New York and Kentucky. The duties of the commission relate to (a) the registration of crippled children in cooperation with the State Superintendent of Public Instruction; (b) the conducting of public diagnostic clinics; (c) in cooperation with school authorities and probate courts, the arranging for treatment in properly equipped hospitals of the state; (d) the planning for the education of crippled children during convalescence; (e) the paying of the costs of care and education for those patients and pupils needing such funds; and (f) the proper "follow-up" supervision of cases which have received medical and hospital care.

These three states have developed typical state programs which point the way of progress in this country. The elements found in their statutory provisions and administrative regulations, relating to crippled children, are found also in various degrees of development in about twenty other states and provinces of North America. The **outstanding feature** of these various elements **is the permanent commission** which insures that physical correction and education, on a high standard quality of service, shall go together, hand in hand, in rural territory the same as in large cities, for both crippled children and disabled adults.

[54]Wright, Op. Cit., p. 103.

[55]Ebersole, Op. Cit.

[56]Senate Bill No. 148, file No. 342, passed at the regular session of the Fifty-fourth Legislature in 1927.

PROGRESS IN RURAL DISTRICTS

It was said in 1914, that a state hospital for crippled children is the only place that "has been developed which meets the needs of the rural crippled child, and no other plan seems likely to provide care for crippled children in those states which have no large city to afford practice for high-grade orthopaedic surgeons."[57] This prophecy has not come true. Leaving out of consideration the buildings for crippled children's work at the University Hospitals of Iowa, Oregon and Oklahoma, no such state institution has been built since 1914, with the exception of those at Gastonia, North Carolina and Elizabethtown, Pennsylvania. Yet this does not mean that progress is not being made toward the care and education of the rural crippled child. Of course, the rate of advancement is too slow. The ten hospitals and five "mobile units" of the Ancient Arabic Order Nobles of the Mystic Shrine have reached many crippled children of the rural states, but like all other institutional programs there is no definite effort on the part of these hospitals to extend their work especially to the child in the country districts. The International Society for Crippled Children publishes a pamphlet relating to, and advocating the promotion of, a national scheme which includes a systematic, continuous and definite plan to find, care for and educate all cripples including those living in rural territory.[58]

One of the best examples of successfully reaching this rural problem is now in operation in Belmont County, Ohio. Here, through the cooperation of the county health commissioner, the county juvenile judge, the county auditor, the county superintendent of schools, their subordinate associates, and the Barnesville Rotary Club with the state departments of health, welfare and education, all the cripples of the county are being gradually contacted. Three county-wide public diagnostic clinics for crippled children have been held during the past year. On September 10, 1926, a county-wide public school for crippled children was opened at Barnesville. Pupils come from all parts of the county. "Most of the out-of-town pupils arrive *** on Monday morning by bus or train and go to their homes on Friday night ***. It is, no doubt, a more or less rare thing to find family homes for crippled children where real 'mothering' is so much in evidence as it is in the temporary homes of our pupils ***. This very fact in itself has played a large part in both the physical and mental development of the children ***."[59] This county work is the flower of the seed sown by "Daddy" Edgar F. Allen and the founders of the "Ohio Plan" in 1921. In drafting the legislation planned to bring care, relief and education to all crippled children, their concern then was practically with the physically handicapped child in the rural districts of the state. The key-note to this successful county work is "cooperation." With a like coordination of effort, any rural county can solve the problem of the cripple, providing it has properly functioning state legislation which sets the standard quality of service and provides for the excess costs of care and education.

Part IV

SOLVING A TECHNICAL PROBLEM

THE COMPARATIVE IMPORTANCE OF EDUCATION

It is certain that the ability to get about on crutches or with the aid of mechanical devices, which comes as a result of high-grade surgical and hospital service does not

[57]Reeves, Op. Cit., p. 14, Introduction by Dr. Hastings H. Hart.

[58]"The International Plan for Crippled Children," May, 1928, Elyria, Ohio.

[59]Paul V. Brown, "A Country-wide Public School for Crippled Children," The Crippled Child, Vol. V, No. 2, July-August, 1927, p. 40.

produce the charm and manners which are necessary to self-support and happiness. Medical aid is not enough to keep the future Lord Byron from wanting "to be buried beside his dog" or the future Richard III from invoking hell to "make crook'd my mind to answer" the "heavens" which "have shaped my body so."[60] Such charm and manners come as a result of scientific corrective education.[61] G. Stanley Hall said some years ago, "Not one even fairly good study can I find of the psychology of any type of cripple, although every bright hunchback or boy with twisted feet or in a wheel chair, fights a daily battle with himself and with the world that is of unique interest to science and that would teach us far more than we now know." Would not a proper study of the psychology of the cripple bring results which would "rival these of orthopaedics and surgery?" The crippled child must have systematic "treatment and education going hand in hand, neither without the other."[62] Education is by far the most important feature of the processes involved in the solution of the technical and specialized social problem of the cripple. Such care and education may be had in the public schools when there is a proper public interest which is efficiently coordinated on a statewide basis. This problem, as we see here, is being partially solved in parts of several countries, and the fields of such service are being rapidly enlarged. The greater work of the future is preventive. We must "Eradicate Crippledom."

EQUALIZING THE BURDEN

While we realize that scientific corrective education from a world standpoint is in its infancy, we have seen that in some places in the civilized world it has made great and important strides in the first quarter of the twentieth century. It is growing now in a healthy and satisfactory manner in an increasing number of centers. Yet it must be said that our chief concern is not with its advancement in these places, but in bridging the gap between what we already know about such educational science and the general use we make of this knowledge. This chasm must be pointed out everywhere to the school authorities, educational experts and legislators by private groups who have near their hearts the highest interest of crippled persons. They must not only show the chasm and the reasons why it should be spanned, but must lead the way in demonstrating how this is to be expeditiously and economically done.

"We are committed in America to the principle that education is essential to the welfare of every person, whether regarded as an individual or as a member of society ***. In order to accomplish this, the more fortunate sections of a state, in respect to financial resources, must assist the less fortunate sections ***. The nation must equalize opportunities as between the wealthier and the poorer states ***. Doubtless this will seem idealistic to some readers; but let all doubters take note of the fact that we have already entered upon this equalizing program, and it is being carried forward successfully in some parts of the country."[63]

Man is mastering the methods of his own advancement and, therefore, he may now hasten the processes of human progress. Thus in the lessons gleaned from the new science of history, we see great encouragement for the practical education of the children of all men, regardless of race, creed, color, or physical disabilities. Education is purposed and ordained for the improvement of all the citizens; let us see that crippled children everywhere get the full measure of its benefit.[64]

THE CRIPPLED CHILD'S BILL OF RIGHTS

The International Society for Crippled Children, in Tenth Annual Convention assembled, at Cleveland, Ohio, declared the following to be the "Crippled Child's 'Bill of Rights'," in which and through which the Society, for the first time states, from the standpoint of the child, its program for the prevention of crippling conditions, the finding of the crippled child, its care, treatment and education, and finally, its placement in the life of the world.

I. Every child has the right to be well born; that is to say, the right to a sound body, complete in its members, physically whole. In the securing of this right we pledge ourselves to use our influence that proper pre-natal, intra-natal and post-natal care be provided to the end that congenital deformity, insofar as it is humanly and scientifically possible, be prevented.

II. Every child has the right to develop under clean, wholesome, healthful conditions. In declaring this right, this Society undertakes to use its influence to the end that children everywhere, through proper legislation, both local and general, and through proper supervision and protection, may grow to manhood and womanhood free from crippling conditions caused by insufficient nourishment, improper food, or unsanitary environment, and free, so far as possible, from danger of accident, wounding or maiming.

III. Notwithstanding the rights of children to be well born and to be protected throughout childhood, it is recognized that in spite of all human precautions there will be, unfortunately, some crippled children. These we declare to have the right to the earliest possible examination, diagnosis and treatment, recognizing, as we do, the fact that many thousand cases of permanent crippling may be eliminated by early and effective care.

IV. Every crippled child has a right, not only to the earliest possible treatment, but to the most effective continuing care, treatment and nursing, including the use of such appliances as are best calculated to assist in remedying or ameliorating its condition.

V. Every crippled child has the right to an education. Without this, all other provisions, unless for the relief of actual suffering, are vain.

VI. Every crippled child has the right not only to care, treatment and education, but to such treatment as will fit him or her for self-support, either wholly or partially, as the conditions may dictate. Without such practical application education is likewise purposeless.

VII. Every crippled child has the right to vocational placement, for unless the child—boy or girl—after having been given physical care and treatment, and after being educated and trained, is actually placed in a proper position in the life of the world, all that has gone before is of no avail.

VIII. Every crippled child has the right to considerate treatment, not only from those responsible for its being and for its care, treatment, education, training and placement, but from those with whom it is thrown into daily contact, and every possible influence should be exerted by this and affiliated organizations to secure this right, in

[60] 3 Henry VI, Act V, Sc. VI.

[61] Joe F. Sullivan, "The Value of Education to the Crippled Child," The Crippled Child, Vol. II, No. 3, March, 1924, p. 9.

[62] (a) G. Stanley Hall, Educational Problems, Vol. II, p. 118, D. Appleton & Co., 1911. (b) Sir Robert Jones, Liverpool, England.

[63] M. V. O'Shea, The Child, His Nature and His Needs, Children's Foundation, Valparaiso, Ind., 1924, Chapter XVI, by John J. Tigert, United States Commissioner of Education, p. 330.

[64] Published by the Education Committee of the International Society for Crippled Children, Elyria, Ohio, January, 1929.

order that, so far as possible, the crippled child may be spared the stinging jibe or the bitter taunt, or, worse still, the demoralizing pity of its associates.

IX. Every crippled child has the right to spiritual, as well as bodily development, and, without regard to particular religious or denominational belief, is entitled to have nourishment for soul-growth.

X. In brief, not only for its own sake, but for the benefit of Society as a whole, every crippled child has the right to the best body which modern science can help it to secure; the best mind which modern education can provide; the best training which modern vocational guidance can give; the best position in life which his physical condition, perfected as best it may be, will permit, and the best opportunity for spiritual development which its environment affords.

The ten provisions stated above were embodied in a Resolution at the Tenth Annual Convention and the adoption of this Resolution was moved by Edgar F. Allen, President of the International Society for Crippled Children and seconded by Paul P. Harris, founder of Rotary International, and unanimously carried.

Abstracts

By John S. Coulter, M.D.

Traumatic Disability of the Shoulder. By George A. Ramsay, M.D., Department of Surgery, University of Western Ontario, London, Ont., in Canad. M. A. J., XXV:5:566, Nov. 1931.

In conclusion, the general principles of treatment are:

1. In serious traumas of the bone, nerve or cartilage, absolute retention is effected, and continued as long as required for initial union. Compression strapping over felt is indicated as a means of limiting exudate.

2. The position of election in the acute stage of even minor trauma, is "bed," to relieve the drag on the capsule, with the arm in the "supreme" position, a position easily secured by pillows. If this does not suffice to overcome spasm then some form of pulley weight traction must supplement the postural management. The general principle is rest, but not too much or for too long a time.

3. In general, for all injuries, assisted active motion should be instituted early; "a move a day keep adhesions away." This may be supplemented by various forms of legitimate physiotherapy. Encouragement is given for voluntary group muscle contraction while in splintage, i.e., muscle re-education. This the patient is encouraged to make as though he were going to do something with the shoulder, e.g., shrugging. Gentle contraction may be induced by galvanism during the retention period.

4. In older patients especially avoid the sling habit, which adducts the arm and internally rotates the shoulder a position where adhesions form and muscular atrophy follows, thus the motions of personal requirement are lost.

5. Supportive strapping with adhesive to help the muscles to function without strain, when use is permitted.

Fractures of the Foot and Ankle. C. O. Epley, M.D., Spirit Lake, in J. Iowa M. Soc., XXI:10:540, Oct. 1931.

After-Treatment of Fractures of the Foot and Ankle

After complete reduction is accomplished, and splints applied, a skiagram should be made in both positions, and again after a few days, if there is any doubt as to whether fragments are behind held in place.

As soon as acute reaction has subsided, from three to ten days, massage should be started, and if permissible, passive motion in the knee instituted. This should be done every other day until well. Passive motion should be started in most cases in two or three weeks, and active motion after five weeks, with hand support in some cases. Radiant light may be used with massage to increase the blood supply. Crutches should be used soon after swelling has subsided, in order that the patient may have some exercise.

Massage and motion reduce callus formation to the minimum, and prevent discomfort in the limb, joint adhesions, and ankylosis.

Much of the disability resulting from fractures is caused by inactivity, prolonged immobilization, early weight bearing, misplacement, and over-production of callus. Sir Robert Jones says, "the presence of tenderness over the callus at the site of fracture is a definite indication that the callus is still soft and will yield on the application of strain." I also believe that if tender callus is irritated by weight bearing or over-active motion, new bone formation occurs at the point of irritation, and extreme tenderness and limitation of motion are produced.

Weight bearing should not begin too early. It is better to wait for five or six weeks to ten or more weeks, if necessary, until tenderness has quieted down. Do not allow the patient to bear weight on a tender, soft ankle or foot. Arch supports should first be used, together with crutches, to relieve strain. In many cases the sole of the shoe should be raised one-fourth of an inch on the inner side, so as to throw the weight outward and prevent eversion of the foot.

In some cases braces should be employed to take off some of the strain until the ankle gets strong enough to support itself. Weight bearing should be employed gradually and not pushed too hard.

During winter months, the patient may need cod-liver oil, ultra-violet radiation, and blood tonics, together with good food and exercise, which stimulate healing to its maximum.

Summary of Treatment

1. Early reduction and correction, assisted by radiography.
2. Maintaining position of fragments.
3. Massage and passive motion very clearly after reduction.
4. Elevation and temporary splinting, when there is much swelling.
5. Active motion of ankle and knee after fifth week.
6. Removal of fixation apparatus as early as possible, usually after fifth week.
7. Delayed weight bearing until callus is firm and discomfort has disappeared.
8. Judicious use of electric stimuli, diathermy and mechanical support.

Fractures of the Ankle. M. S. Henderson, M.D., in Proc. Staff Meeting Mayo Clinic 6:41:601, October 14, 1931.

It can be stated without fear of contradiction that

the consensus of opinion today is that conservative measures give, in the main, satisfactory results in fractures of the ankle, and that open operative treatment should be reserved for exceptional cases only. Trimalleolar fractures, with a large posterior malleolar fragment, usually demand open treatment. If operation is to be undertaken it should be done early. Treatment of fractures of the ankle may be arbitrarily divided into four stages; reduction, retention, mobility and weight bearing or function. Plaster of Paris affords the best means of maintaining fragments in position, and casts should be smoothly and evenly applied. If signs of circulatory constriction are evident the casts should be split at once, or ischemic paralysis may develop. Although not so commonn or so disabling as the same condition in the hand, it is a danger. Motion should be instituted as early as possible. Active, carefully supervised movements are preferable to passive motion. Weight bearing should be permitted only when the fracture is solid, and it is usually better to provide an alteration in the shoe, to throw the weight on the outer side of the foot, and thus prevent valgus. If necessary, an outside iron and an inside strap can be provided.

Modern Methods in the Treatment of Chronic Rheumatism. Matthew B. Ray, B.S.O., M. D., Senior Officer to the British Red Cross Clinic for Rheumatism; Honorary Officer to the Marylebone Dispensary; in The Practitioner, CXXVII:5:517, November, 1931.

Physical treatment.—Inefficiency of the skin as an adaptation organ is one of the outstanding features of the rheumatic syndrome. By this vast area of cutaneous sensory nerve endings in close association with the thyroid—adrenal—sympathetic system, the reactions of the body to external influences such as temperature, light and humidity are determined. The capillaries of the skin form a huge vascular reservoir capable of containing one third of the entire blood supply of the body. States of relaxation or contraction of these vessels have therefore a profound effect on deeper structures. This "buffer action" of a highly sensitive organ renders it particularly suitable for the application of the energy of heat, light, movement and electricity as therapeutic agents.

The manner of their employment constitutes that branch of the medical art commonly known as "physical treatment." Heat and cold may be applied generally or locally in immersion baths of plain or mineralized water, packs of various kinds or in hot air or vapor rooms. The energy of movement finds its use in manipulations and frictions and exercises, frictions, percussion by douches and the action of whirling water. Radiation is employed as heat, light and invisible rays (ultraviolet and infra red) from arc, mercury vapor or other lamps. Electricity is applied as constant current to resolve exudations and promote nutrition; as interrupted current to cause movement in muscle fibres, and as high frequency current (diathermy) to raise the temperature of deep seated parts through their resistance to its passage.

Inactivity of the skin with deficient sweat secretion.—Immersion in reclining baths at a temperature above that of the body will raise its internal heat, due to the prevention of heat loss from the surface. In this manner sweat secretion is stimulated. The same applies to a vapor bath. A hot air bath will promote perspiration without raising the internal temperature. Brine, mud and peat baths also induce free perspiration. Alternate hot and cold douches have the effect of toning up the skin and increasing its activity.

Sluggish skin circulation.—The manipulative douche is largely used to combat this. It consists essentially of massage under constantly flowing streams of hot water. During the course of this treatment, the fingers and hands of the operator gliding smoothly over the softened parts, grasp and squeeze the tissues, thus emptying the lymphatics and stimulating flow of blood in the capil- cold douches have the effect of toning up the skin and without massage, is also used.

Stimulation of the defensive mechanisms of the body.—Stated briefly, the action of a vaccine or other protein is to stimulate the defensive mechanisms of the body. In the course of treatment by hot baths and manipulation, certain substances lying in the neighborhood of the affected parts may be taken into the blood stream and there act as a "foreign" protein.

Restoration of movement is stiffened muscles.—The "pool bath" is extensively used for this. The temperature varies from 97 to 104 F.

The importance of getting the patient to move his stiffened joints at the earliest possible moment after the inflammatory condition has passed off cannot be too strongly emphasized. No joint can possibly attain a healthy state unless it exercises its proper function of movement. Movement of the limbs in water is something between active and passive motion. Volition motions are made and carried through with much less expenditure of energy.

Resolution of old inflammatory adhesions.—The inflammatory exudation following an attack of arthritis or fibrositis often becomes organized into painful bands which cripple and limit the movements of the joint and give rise to painful hard nodules and tender patches in the muscles. The presence of indurated swelling and blocked lymphatics in the neck may cause brachial neuritis and even deformity in the fingers. Skilful massage of these regions can frequently relieve not only the pain, but markedly diminish the deformity of the fingers. Treatment on these lines has been successfully applied to the stiffened hands in early rheumatoid arthritis.

The relief of pain.—Heat is a sovereign remedy in the relief of pain. It should be intensive or as hot as can be borne. Everyone knows the efficacy of a hot poultice. There are many ways in which heat can be applied. Among them are the hot immersion bath, general or local; plain or mineralized; hot douches, hot packs, of mud, peat or paraffin wax, local vapor or heated air. The temperature of deep seated parts can be effectually raised by means of high frequency (diathermy).

The Treatment of Poliomyelitis. John Ruhrah, M.D., Baltimore, in Jour. A. M. A., 97:17:1224, Oct. 24, 1931.

During the febrile period all efforts at treatment should aim to make the patient as comfortable as possible, using the technic which would be applied to any acute infection. Rest is essential and the late results are best when that is insisted on, whether the case is mild or severe. The patient should be kept in bed as long as there is pain, but during this period it may be advisable to lift him to another bed or comfortable chair while the bed is aired or made.

The pain due to contractions is best treated by immobilization by applying light plaster casts and cutting them so that the patient or the extremities may be lifted out for bathing, massage, manipulation and rest. Various splints may be used, but casts are as a rule more satisfactory. The relief from pain follows as soon as the muscles quiet down and the patient becomes adjusted to the appliance.

Failure to prevent deformities due to contraction of

the muscles, tendons and fasciae is the greatest sin of omission.

Immobilization in the correct position takes care of part of this; massage and passive motion of as much of the remainder as is amenable to treatment. Every day the patient should have the immobilizing apparatus removed, the parts bathed, rubbed with alcohol, powdered and passive movements made in all directions. If there is severe nerve pain and the patient is extremely sensitive to all manipulation and even to touching, this may be reduced to a minimum and in some cases even omitted altogether except for cleanliness.

As power returns the patient will move about of his own accord, but he should not be allowed to overdo this. At first the movements should be partly voluntary and partly assisted by the physical therapist. Fatigue should be avoided; too little treatment of this kind during the first six months is better than too much, and in fact at any time.

The most useful suggestion concerning exercise has grown out of the recent Georgia Warm Springs Foundation work, where under Dr. LeRoy Hubbard a system of after-treatment has been developed. This consists in graded exercises given by trained physical therapists for the most part while the affected part is submerged in water at a temperature of about 90 F.

As Archmedes pointed out, the body is as much lighter in water as the volume of fluid it displaces. Under water, muscles that are useless in the air may be moved, and daily exercise properly directed enables the patient to secure a maximum of development of any muscle which has any innervation left.

Fatigue is to be avoided. All poliomyelitis patients are unusually subject to tire, and nothing can be more destructive both to muscle power and to morale.

General fatigue almost always comes on without any warning, or the danger signals are so slight as to be disregarded by the patient and his advisors. Rest in bed, pleasant light diversion to fill the long and tedious hours of enforced idleness which only too often destroy the patient's morale, and carefully regulated massage, good food and general care are the indications—all of great importance. Only too often are such patients put to bed to stew and fret mentally when a little sensible diversion would avoid much suffering.

SUMMARY

The treatment of poliomyelitis after the febrile period consists in rest, relief of pain, prevention of deformity, massage and exercise, which may be passive, assisted, voluntary, carried out under water, but always supervised. The increase in the volume of urine, especially that voided at night, is suggested as a possible indicator of serious fatigue.

Prevention and Treatment of the Deformities in Anterior Poliomyelitis. Jacob Grossman, M.D., Chief of the Orthopedic Clinic, Lebanon Hospital; attending Orthopedic Surgeon, Shield of David Orphan Asylum, New York, N. Y., in Med. Times & Long Island Med. Jour., LIX:10:341, October, 1931.

After the tenderness has disappeared, active treatment should be begun—the sooner the better. The resistance of the patient should be built up with general tonics, fresh air and good food. Massage, electricity and muscle training should be given until the period of spontaneous repair has passed. This period is an indefinite one, and by most authorities is said to be between one and two and a half years after the onset.

The massage should be given daily for fifteen minute periods. It may be given either with an electric vibrator or manually, preferably the latter. The mothers should be taught how to massage the affected parts at home, so that no time is lost. The benefits derived from massage are: (1) the improvement of the local and general circulation. (2) The prevention of muscular deterioration.

In regard to the electrical treatment, there is a disagreement as to the benefits derived therefrom. In our experience we have found this treatment very helpful. The faradic current is useless and can only do harm by overstimulating the muscles and nerves. Hydrotherapy is of some benefit, as it increases the circulation and stimulates the growth of the limb. The affected part should be immersed in water 95 to 100 degrees F. every night for fifteen to twenty minute periods.

Muscle training is most useful. It is based on the fact that all the motor centers in the cord have not been destroyed, unless the destruction in the cord has been a very extensive one. Hence new connections and new paths for sending a motor impulse from the brain to the muscles are produced. Passive movement is the first one done. It should be done slowly and to the fullest range of motion possible, pausing at each extreme and returning the part to the normal position when the motion is finished. The same movement is then performed against slight resistance offered by the patient, the resistance being gradually increased. The patient then performs the movement himself while the physician guides it along the proper plane. The guidance is gradually diminished and as the patient becomes more proficient the guidance is removed entirely. Finally the movement is performed against the resistance of the physician, the resistance being varied according to the degree of paralysis present. In addition to the muscle training, a good means at our disposal is to get the patient on his feet as soon as possible after the painful stage and in that way have him use his muscles by his own efforts, to walk and balance. The sitting posture is most adaptable for training the muscles of the spine and trunk.

Physical Therapy in a Modern Hospital. Robert Dwight Brown, M.D., in Hosp. Progr., XII:10:452, Oct. 1931.

AN "ADJUNCT SPECIALTY"

As to the value of a physical-therapy department in a hospital, it is not a cure-all, nor a universal panacea. In fact, there are relatively few conditions in which physical therapy is alone sufficient for a cure. On the other hand, there are very many conditions in which physical therapy, when added to the proper medical or surgical treatment will expedite the cure, and in some cases, perhaps, turn the scale when the balance is swinging the wrong way.

The American College of Surgeons, in a letter sent out a year or two ago, referred to physical therapy as an "adjunct specialty." This I believe to be a very good description, as it impresses the idea that physical therapy does not do its best work alone, but as an adjunct or assistant to other treatment. I prefer, however, to consider it a consultation specialty, one which should never be employed except after a consultation between the attending physician or surgeon and the physiotherapist.

NECESSARY EQUIPMENT

A complete physical-therapy department should comprise apparatus for the application of the various electric currents: low voltage, direct (or galvanic) and

sinusoidal; high voltage; high frequency (or diathermy) with its several modifications. The high frequency machines should include, at least, one of a portable type, to be used at the bedside of the patients too sick to visit the department. Lamps generating visible light, ultra-violet and infra-red rays, should be available in several sizes and shapes. Hydrotherapeutic equipment should include arm and leg whirlpool baths, a needle bath, an electric bath cabinet, a control table, and a continuous bath. There should also be vibrators, concussors, and several devices for mechanically exercising the various parts of the body.

And now we come to the most important part—the personnel of the department. A hospital does not consist of a beautiful building, with so many hundreds of beds, and the latest equipment in operating rooms, sterilizers, automatic food conveyors and handsome furniture. These are but the tools. The hospital consists of the devoted band of men and women, particularly women, who give their lives to the care of the sick.

NECESSARY PERSONNEL

A physical-therapy department similarly stands or falls by its personnel. The department should be in charge of a physician who has made a special study of the numerous phases of physical therapy, and who also has a fair knowledge of general medicine and surgery. He should thoroughly understand the mechanics of his equipment, as well as the physiological and pathological indications for each type or kind of treatment. As with any other potent therapeutic agent, physical therapy can do harm if improperly used.

As to the financial returns from a physical-therapy department, it is impossible to give definite figures, simply because the returns depend entirely on the attitude of the staff toward the department. If that attitude is friendly, the department will pay. Many of the large eastern physical-therapy departments have started in one small room, and have increased manyfold.

The New Wing of the Hotel Dieu, Kingston, a Model of Hospital Construction. By Mary L. Burcher, B.A., in The Canadian Hospital, 8:11:14, Nov. 1931.

The Physical Therapy Department is adjacent to the X-Ray Department. It, too, has been completely refitted with the latest treatment machines, including a Super-Excell Diathermy Machine, Radiant heat lamps, Infra-Red lamp, an air-cooled Quartz Lamp and water-cooled machine, A Sine-wave generator. This department is also under the direction of Dr. Quigley, who is assisted by a Sister, who has specialized in massage and joint manipulation. The Hydrotherapy Department is supplied with a continuous bath, Sitz bath, electric cabinet bath, shower bath, etc. Colonic Therapy is made possible through the donation of a Shellburg unit.

Physical Agents in the Treatment and Prevention of Pulmonary Tuberculosis. J. Browning Alexander, M.D., M.R.C.P., Senior Physician Prince of Wales General Hospital; Physician, City of London Hospital for Disease of the Heart and Lungs; Physician St. Marks Hospital; in British J. Physical Med., VI:8:165, November, 1931.

While surgical measures including collapse therapy, have been the means of arresting disease in active and even advanced cases, physical agents are still of the utmost value in mild or suspected cases. It is my object to discuss briefly the value of (1) bodily exercises (including breathing exercises); (2) fresh air; (3) climate; (4) occupation; (5) sunlight treatment; and (6) diet in the treatment and prevention of pulmonary tuberculosis.

Bodily Exercise.—It is important not to forget the physiological principle, that lesions of the lungs heal by contraction and not by expansion. Undue bodily exercise is therefore unsafe while there is active disease, and the only rational way of securing rest to the affected part is by keeping the patient in bed and thus securing him as nearly absolute rest as possible. If however the disease be not active, then gradual and graded exercise, prescribed in detail, is beneficial.

It is not sufficient to tell the patient that he may walk a short distance each day; it must be made plain to him that he walk a mile or half a mile, as the case may be. As regards the correct amount of walking, one should be guided by the patient's reaction. This is measured by his temperature, fatigue, sweating, cough and weight. When the patient is deemed fit for some exercise after, e.g., a period of rest the time allowed should be definitely stated. Thus fifteen minutes of some mild exercise is all that one should advise to commence with, paying particular attention to his reactions. The time should be gradually extended to two hours. An important point also is that, whatever the form of exercise, it should, as far as possible, be congenial, something interesting and productive of a feeling of usefulness leads to benefit.

Fresh Air.—I am convinced that in treating tuberculous patients, comfort is an all-important factor. An undue coldness is not consistent with this. And, further, it is apt to cause troublesome symptoms, an important example being insomnia. I also believe, in spite of what has been said to the contrary, that drafts are distinctly harmful, and that sudden changes in temperature must be avoided by tuberculous patients.

Climate.—One of the most frequent questions asked by the consumptive is, "where should I live?" The value of an appropriate climate is very largely in the lay mind. One must admit the beneficial results from change of air or residence in a sanitarium on the hills, but it is a question how much of the undoubted benefit is due to the climate. The psychic aspect of the change must not be under-estimated. The pleasant surroundings, the holiday spirit and the freedom from anxieties and worries are no doubt responsible in a great part for the good results.

Occupation.—There are instances in which it is the doctor's duty to recommend some change of occupation. For instance, the city clerk will often be wise to seek some post which entails an open air life. Again those working in dusty atmosphere, e. g., workers in cotton mills, furriers, carpenters and builders, should be told of the dangers, and strongly urged to choose some work where these conditions are absent.

Sunlight Treatment.—It is generally admitted that plenty of sunlight, when available, helps the tuberculous patient. Whether the whole benefit is due to particular rays of the sun, or to the general feeling of well being produced by a sunny climate, is a question which space does not allow me to deal with. But since adequate sunlight is in this country rarely available for treatment, a few words about the value of ultraviolet irradiation may not be out of place. Formerly it was thought that this was contraindicated in pulmonary tuberculosis, but recently opinion has veered to the belief that if properly administered, it is beneficial—i. e., with appropriate and judicious dosage. It must,

however, be understood that the indiscriminate use of ultraviolet therapy is harmful, and I am convinced that it may be dangerous to patients suffering from active disease with fever, sweat and cachexia.

I think a good way of estimating the benefit or otherwise of ultraviolet irradiations is to regulate its use according to the reactions produced—e. g., rise of temperature or a feeling of exhaustion is an indication for modifying the time, dosage, etc. Should hemoptisis take place, it is inadvisable to continue ray therapy.

Diet.—Diet has at all times held an important place in the treatment of tuberculosis patients. It has been generally thought that by increasing the body weight by a large amount of nourishing food the patient's resistance is raised and his power to fight against the bacillus enhanced. So deep has been this belief that in certain countries (including our own), forced dieting has been adopted, with the idea of fattening the patient at any cost. Some have even held that the fat person never dies from tuberculosis. This would be logical if it were always true that by laying on fat the patient's resistance is raised and his general condition improved. But very often the fat person is unhealthy, since his weight causes dyspnoea and a consequent disinclination to indulge in exercise which would be of great benefit. The muscular tone is also impaired, and general flabbiness and excessive fat lowers rather than raises the resistance. Again, over-feeding is apt to cause dyspnoea and constipation, both of which will retard cure. (From these, one cannot imagine anything more cruel than forcing an individual with a small appetite, or even a distaste for food, to eat large meals.) Let it be understood, however, that although the aim is not the production of fat, one must give the patient ample diet, in many cases one in excess of his physiological needs.

The Present Status of the Treatment of Tuberculosis of the Cervical Lymph-Nodes. By Richard H. Miller, M. D., of Boston, Mass., in Ann. Surg., XCIV:4:539, Oct. 1931.

In the discussion of treatment, I shall confine myself at first entirely to those cases in which there is no evidence of active pulmonary disease, or active general tuberculous infection.

One aim of the clinic has always been to advise heliotherapy whenever possible, and to this end we constantly give instructions to patients to try to get as much sunlight, consistent with safety, as they can.

Artificial light we use as much as we can, employing both the carbon arc and ultraviolet lamps. The proper evaluation of the results of this treatment is difficult because we have not run a series of cases using this alone, for the reason that it has seemed to us that other things were important and, if they were of avail, we should not deprive the patient of their benefit. To a large measure we have combined the use of artificial light therapy with the use of tuberculin.

Treatment with Tuberculin and Lamp Therapy (57 Cases) Improved, 26, 45 per cent; Not improved, 18; Doubtful, 13.

In our clinic we were brought up to look on the radical excision of cervical tuberculosis as anathema, and a procedure to be reserved only for cases in which no other form of treatment could be of any possible avail.

For the average patient, who cannot afford the time or expense of prolonged hygienic treatment, surgery seems the method of choice. With this we heartily agree.

Operation will not, of course, be suitable for all cases. It should be reserved for those with fairly discrete masses, preferably rather early in the course of the disease.

Treatment by Radical Excision (89 Cases) Improved 46, 51 per cent; Recurrences, 23; Doubtful, 16; Other tuberculosis, 4.

We believe that where these nodes are discrete, where the technical difficulties of operation are not insuperable, and where there is no active pulmonary or general disease, radical excision should be given serious consideration as the treatment of choice.

Bone and Joint Tuberculosis in Children. Clinic, Theodore Toepel, M. D., Atlanta, in J. M. A., Georgia, XX:11:417, November, 1931.

Rest and diet are fairly well understood. Invite your patience to a dissertation of the importance of the use of heliotherapy, especially the sun.

Bone and joint tuberculosis, a local condition, is but the manifestation of a general disease, it therefore becomes necessary to stimulate the enfeebled resistance of the whole system, in reconstituting the "soil," by intensifying every vital activity which can restore the broken equilibrium, both in the physical body and in the mind, from which the former is inseparable.

Now if the problem of tuberculosis presents itself under this double aspect, its general treatment demands a double condition. To a case of general disease presenting local seats of infection must be applied a general therapy, having in view first the improvement of the general condition, to which must be added a local treatment which, to be rational, should in no way impede the improvement of the whole organism.

Heliotherapy associated in a natural way with aerotherapy, seems through its double action, local and general, to fulfill these conditions.

On the one hand heliotherapy is the best stimulant to the metabolism and the vitality of the organism; on the other hand, by reason of the analgesic, bactericidal, sclerogenic and resolvent action of the sun's rays, it constitutes the ideal local treatment.

In order that the patient may benefit by this double action it is always advantageous, winter and summer, to use the sun's rays to the whole surface of the integuments.

Heliotherapy exercises a definite restorative influence upon the muscular system, and the restoration of this is of great importance in the defense of the organism against tuberculosis. General heliotherapy, in restoring to them their original tonicity and firmness, reestablishes and strengthens the action of these natural levers, and aids the return of the functions of the jonts in an eminently physiological manner. In this connection I will only mention the restorative action of the sun's rays upon the blood and upon the general metabolism and the metabolism of salts. In regard to tuberculosis of the joints, the most striking action of such general heliotherapy is shown by its influence upon the bones. Mineral metabolism is so favorably modified by the action of the sun's rays that the amount of calcium and phosphates in the blood rises, not only to normal but even passes the acid-basic equilibrium, contributing thus to the recalcification which is clearly shown by radiographs.

This recalcifying property, which I used in my early entry into the practice of medicine very crudely, merely by insisting upon the exposure of the whole body to the sun's rays, and later using it in selected cases of bone and joint tuberculosis and rickets, has been con-

firmed by Hess in a number of articles in the Journal of the A. M. A., and by Huldschinsky in Germany in regard to the action of ultraviolet rays.

In order to combine rest, extension and exposure to the sun's rays, it has always been my practice to fix the body or the extremity with an apparatus made of webbing, which immobilizes the diseased articulation only, allowing freedom to other joints, and by gentle extension, keeping the affected joint in perfect rest and not depriving it and the balance of the body of the restorative action of the sun's rays.

Acute and Chronic Otitis Media and Sinus Thrombosis. Samuel J. Kopetzky, M.D., New York in Arch. Otol., 14:4:489, October, 1931.

Landry, Franquet and Paris (La penetration ionotherapique par la voie transtympanique, Ann. de mal de l'oreille, du larynx 49:235, 1930,) reported interesting results from experiments conducted by ionotherapy. They showed that in rabbits the ionization of magnesium sulphate, which they place in the external canal in the presence of an intact drumhead, results in the passage of the magnesium ions through the drum into the middle and inner ears. Daily ionization of magnesium sulphate resulted in an increase of magnesium in the urine and feces of the animals experimented on. The increase of magnesium in the urine persisted for fourteen days after the cessation of ionization. In addition chemical analysis of the temporal bone showed a marked increase in the quantity of magnesium.

This experiment is of value in showing that one has, through ionization, a means of carrying drugs deep into the tissues of the middle ear.

Electric Ionization in Oto-Rhinology. By Dr. Gordon J. McCurdy, 122 Waterman Street, Providence, R. I., in Rhode Island M. J., XIV:10:151, October, 1931.

The types of cases I have treated are of four kinds: first, polypoid conditions, both before and after operative intervention; second, turbinal hypertrophies and intermittent intumescent turbinates; third, catarrhs and chronic rhinitises; and fourth, ozaena. The zinc sulphate ionization will without question shrink polypoid structures. To see what amount of shrinkage I could get, I took two boys, charity patients, both of whom were working and could not spare the time for operative interference, and both of whom had nasal cavities quite full of polyps. They both had a lot of muco-purulent discharge. The nasal cavities of each were packed, as above, and they were ionized twice a week for three weeks at 5 milamp. for 20 minutes. At the end of that time the polyps were about half the size that they were at first, and the discharge was much less. I ionized them further, but this was about the maximum benefit I could get.

In the second type of case with hypertrophied turbinates or with intermittent intumescent turbinates, in which first one side then the other is congested and closed off, much benefit can be obtained. The zinc sulphate ionization many times makes a permanent shrinkage of the turbinates. I have had success with a number of patients, and the reports of others bear out my experience. It usually takes six to ten treatments, which I usually do twice weekly. In this type of case the electrode can usually be used somewhat in the way of a cautery. A zinc needle may be run through the turbinate from front to back, near the bone edge, and a current of 15 milamp. employed for about half an hour. Then the current is reversed, so as to loosen the needle, and the needle is withdrawn. A permanent shrinkage will be obtained from this.

In the third type of case, that of a chronic rhinitis or postnasal catarrh, ionization often gives quite striking results. For instance, one patient, a lady, age 70, had developed apparently an acute ethmoiditis, had been treated for six months with intranasal packs and bakings, etc., three times a week with no benefit. She still had severe headaches and nasal drainage. I could find no actual sinus infection. The X-ray showed no sinus involvement. The first treatment gave her a great deal of discomfort for several days, probably due to congestion from the irritation of it, which produced a consequent vacuum sinus headache, but she was game and came back, and after three more treatments her headache was completely gone, and her discharge had almost ceased. A sub-mucous resection would have undoubtedly done her much good, but due to her age and the state of her cardic-vascular-renal system, I hesitated to do this.

In the case of ozaena or athrophic rhinitis, ionization undoubtedly aids in alleviation of symptoms, and in cleaning up the nose. The crusting becomes much less in amount, and the odor becomes much less. So far, I have had no cures of the condition but in conjunction with other methods of treatment the results are very encouraging. I usually use zinc for a few times, to help clear up the surface infection, then if the nose becomes too dry I employ salicylate to increase the congestion of the turbinates. Less current can be stood by the patient with this than with zinc, because the size of the salicylate ion is greater and with much force of current pain is experienced when too many ions try to gain entrance to the tissues at once.

Flexural Eczema; a Subgroup of Infantile Eczema. Herman Goodman, M.D., and Marjorie Burr, B.S., New York, in Arch Pediatrics, XLVIII:10:658, October, 1931.

Patients with flexural eczema show temporary improvement with ultraviolet ray from either natural or artificial sources, and with X-ray. Relapse follows the stopping of this treatment. Ointments of crude coal tar cause rapid improvement. Unguentum borici acidi has no effect.

Psoriasis. Abst. in Jour. A.M.A., 97:19:1412, Nov. 7, 1931, from Archives of Dermat. & Syph., 24:446, (Sept.) 1931.

Goeckerman states that the use of tar and ultraviolet rays in the treatment for psoriasis in the outgrowth of a persistent effort not a "cure" but more effectually to control individual attacks. There is no evidence that this treatment will in any way fundamentally modify the course of the disease. Intervals of freedom from eruption are probably not determined by it. Psoriasis associated with arthritis responds symtomatically as well as psoriasis without arthritis. For some unknown reason the arthritis is materially benefited in about half the cases by treating the lesions of the skin. A small percentage of cases with rather distinctive clinical manifestations do not respond well to the treatment. Its beneficial effect in exfoliative dermatitis secondary to psoriasis is unique. It is not recommended as a measure to be applied as a routine for a few patches of psoriasis, as other efficacious methods are more simple, but it can often be used without materially interfering with the patient's work. The scalp and nails do not lend themselves

to this method of treatment. It is a decidedly valuable method for clearing up temporarily extensive and resistant eruptions on the glabrous skin and practically always succeeds when various forms of treatment by roentgen rays, chrysarobin or other substances and methods have failed or are contraindicated. The principles of the treatment must be applied and the simple technic mastered, or success cannot be expected.

The Antirachitic Effect of Sunshine. Current Comment Sec., in Jour. A.M.A., 97:19:1390, Nov. 7, 1931.

The part that unobstructed sunshine may play in the prevention of rickets or in the correction of osseus defects of this disorder has become familiar to every physician through the scientific researches of recent years. Fortunately skyshine on a bright, clear day may also contribute some wholesome effects. The potencies are due, of course, to the amount of solar ultraviolet rays that reach the exposed parts of the human organism. Cloudiness, smoke and fog greatly diminish the efficacy of the solar radiation. In a recent issue of THE JOURNAL, attention was directed to the comparatively high antirachitic action of Colorado sunshine with relatively little seasonal variation. Lewis, Frumess and Stein of the University of Colorado School of Medicine in Denver ascribed this to the fact that throughout the year in Colorado relatively short wave radiations reach the earth as a result of the high percentage of winter sunshine, the low humidity, and the small amount of smoke in the atmosphere. Other observers have repeatedly called attention to a seasonal variation in effective sunshine—a feature which the Colorado investigators did not experience to any noteworthy extent. Tisdall and Brown of Toronto have pointed out that changes in antirachitic effect, so far as they are associated with easons, are apparently largely dependent on the altitude of the sun above the horizon. When the sun is low in the sky the rays necessarily pass through a greater amount of the earth's atmosphere, and the short biologically active rays are markedly diminished. It is stated that the critical altitude of the sun is 35 degrees, below which the rays produce only a slight antirachitic effect. Recently, in a review of some of the earlier work, Tisdall and Brown have remarked that altitude is a factor to be taken into consideration in evaluation of the effects of sunshine. There are a few favored places in the world, they state, such as Switzerland and Colorado, where the height above sea level is so great that the air mass through which the sun's rays must pass before reaching the earth's surface is materially reduced. Altitude as well as latitude thus plays a part in making sunshine effective antirachitically. In Denver, at an altitude of 5,300 feet above sea level, considerable of the sun's rays pass through the air mass even when their source is less than 35 degrees above the horizon. The surplus of bright sunshiny days in Colorado is thus enhanced by the advantages of altitude in preventing loss of ultraviolet rays. The most thickly populated sections of the temperate zones, however, are situated at an altitude of less than 1,000 feet, and have to reckon with seasonal variations as well as atmospheric contaminations.

Constipation. Hilton S. Read, M.D., Atlantic City, N. J., in J. M. Soc. New Jersey, XXVIII:10:755, October, 1931.

It is a medical problem that needs careful analysis and study, just as any other medical problem, and there are many causes of it that one should consider in a careful appraisal. We realize full well that arteriosclerosis, mechanical interference, gall-bladder disease, and achylia gastrica are just a few isolated factors out of the legion of causes. However, in our limited experience, the chief cause of constipation has been inefficiency of the colon itself and it is this functional disturbance that we will consider tonight.

The clinical history of the constipated patient must be taken with meticulous care. The date of incidence of the constituation should be ascertained as accurately as possible. Often it is in the days of childhood. The dietary habit should be noted exactly as to time of eating, and the relation of the time of eating, and of getting up, bathing, exercising, working and so on. The kind and amount of food eaten and the amount of water drunk should be noted.

I have on my desk two pads; one is a prescription pad and its twin is labelled "Medical Instructions." More often than not the patient leaves without a prescription, but he always leaves with a list of medical instructions, which list contains the diet, amount of water to take, amount and kind of exercise, hours for retiring, kinds of bath to take, and so on.

Examination of the patient with constipation should be the usual, complete, physical examination. Digital examination of the anus and rectum, and an anoscopic examination, often reveal valuable information. The commonly accepted principle, that ingested food is excreted in 24 hours, is perhaps quite wrong; a nearer estimate would be 48 hours. Alavarez has estimated that the remnants of 3 days' meals are in each bowel movement. Someone has pointed out that there are many duplications of chemical actions in the intestines, as a safety factor, but there is only one muscular tube, responsible for transportation of the food and its end-products, from one end of the gastro-intestinal tract to the other. It is like a railroad system, where, if there is trouble between New York and Trenton, the danger signals go up all along the line as far back, perhaps, as Washington. It is nature's defense. Stasis in the colon may be evidenced by nausea. The colon is already overworked and nausea prevents the patient eating more and throwing more work on the floundering colon.

A fluoroscopic examination is often quite important.

The treatment of constipation begins in childhood, by preventing its occurrence. Prevention should also be continued in adult life by educating the public to avoid fads in diet and the self-prescribed use of cathartics.

The active treatment of the constipated individual really begins wth his first visit to the physician. From then on it is a matter of complete cooperation between patient and doctor, to the end of educating the patient and his colon to normal function.

The first step often is to correct the patient's posture. Dr. Carnett, of Philadelphia, has generously shown me some of his figures, with which my limited series checks, relative to the lift of ptosed organs by proper posture. His average lift of the duodenal cap is 4¼ in., and of the greater curvature of the stomach 6¼ in. I think it unfortunate that less and less significance is being given to ptosis as a provocative factor in constituation.

Emotion and fatigue are great factors in the production of constipation, by producing changes in the gradients of the colon.

An important step in the treatment of constipation is to forbid the use of all cathartics. Often he must not only be told what to eat, but what to drink, how and when to exercise, when to bathe, and how to go to the lavatory. Sometimes I have had blocks of a stool built that would bring his knees quite on a level with his chin,

the old fashioned Indian squat position. He is then instructed to massage his abdomen with the palm of one hand, pushing the palm of the other hand over the course of the colon. I know this cannot stimulate movements of the colon, but it keeps the patient occupied while taking sufficient time, and perhaps helps the abdominal muscles. A morning cool plunge, with a drink of warm water and a brisk outdoor walk or horseback ride before breakfast, is often helpful.

A 20 minutes' rest period after meals, and an evening walk followed by a warm tub before retiring, are often beneficial. Certain exercises, unless ontraindicated, are desirable. A favorite of mine is a deep inhalation for 4 counts, holding the breath for 4 counts and exhaling for 4 counts. Patients get so they synchronize this with walking and a cycle of the exercises is complete with every 12 steps. Bending trunk on hips, twisting trunk on hips, coming to a sitting posture without use of the arms, alternate retraction and relaxation of the abdominal muscles, and bringing the knees to the abdomen while lying on the back, are just some of the exercises that can be done for 15 minutes, more or less morning and evening.

Generally speaking, I am not inclined to use the roughage diet. There is no pattern that fits every constipated person. The diet, in particular, is a personal equation.

Low Back Pain in Gynecologic Practice Due to Lumbosacral and Sacro-illiac Strain. W. A. Cochrane, F.R.C.S.E., Hon. Assist. Surgeon, Royal Infirmary, Edinburgh; in the Jour. Obst. and Gynec. of the British Empire, 38:3:538, Autumn of 1931.

TREATMENT AND RESULTS

The aim of treatment has been to restore the back and the body as a whole to a state of good posture, so that correct function may then be possible. The means employed are rest, massage, heat, reeducation of the muscles, and support of the spine and pelvis. The patient is put to bed for three weeks, on a very firm mattress. She lies on the back with a low pillow beneath the head and knees. Thrice daily for half an hour after meals, she is put itno a position of what is called super extension. A pillow is placed beneath the chest and the hands clasped behind the head. The effect of this is to throw the chest forward and, by leaving the lumbar spine unsupported, to cause flattening of the lumber spine. The patient is turned over and made to lie face down upon a pillow placed lengthwise beneath the trunk for half an hour following the superextension position, and hot fomentations are applied to the low back. In a few days' time the back is massaged and the patient is taught a simple list of exercises to be performed when lying down to teach her how to obtain active concise control of the muscles of the trunk and pelvis; thus she is taught to correct the lordosis. When she gets up the remedial exercises are continued and should result very soon in an individual whose posture in standing, sitting and walking is habitually correct. To help the patient to maintain the correct position a strong back-lacing corset is often required for a time, until the muscles are strong enough to do the work for themselves.

During the last two years fifty-five cases have been treated along these lines. These cases have all had gynecologic conditions plus low back pain. Dr. Young has treated the gynecologic condition and, at the same time or on recognizing that the back pain still persisted, he has gone further and has had the orthopedic element corrected. Of these patients thirty-six have returned for physical examination and eleven have replied by letter. Eight cases are unaccounted for. We have thus to deal with forty-seven cases. Of these fourteen were adjudged to be cases of sacroilliac strain (12 chronic and 2 acute). Thirty-three were taken to be cases of chronic lumbosacral strain.

Sacroilliac cases.—The two acute sacroilliac cases were manipulated under an anesthetic and completely cured. Of the twelve chronic cases, eight are cured, two relieved, and two a little better. By cure is meant that the patient is free of pain, can do her work, and does not require any special support.

Lumbosacral cases.—The chronic lumbosacral cases respond to treatment more quickly and readily than the sacroilliac cases, but are more difficult to cure completely. In this series, seventeen are cured, nine are relieved, and seven are not much better. When one considers that to cure these cases an intelligent and cooperative patient is necessary, these are fairly good figures for hospital cases.

Backache and Cervical Infection. C. A. Robinson, M. B., in Proc. Royal Soc. Med., XXIV:11:1505, September, 1931.

Some ten or twelve years ago, while I was treating cervicitis in the electrical departments of St. Bartholomew's and West Middlesex Hospitals, patients often volunteered the statement that their general health had improved and that backache, from which they had suffered for years, had completely disappeared during the course of treatments. This happened both in cases treated by ionization and in those treated by diathermy, and so frequently that I began to choose for examination of the cervix for infection, cases in which the patients complained of backache and to treat this for the relief of backache.

The methods of application of diathermy are those I have on former occasions described at meetings of this Section (treatment of pelvic inflammation by means of diathermy, Proc. Roy. Soc of Med., 1929, XXII, Sec. of Electrotherapeutics 1). There are two distinct procedures, each having its particular object. In one a mild degree of heating of the pelvic contents is the aim, the heating being as wide spread as possible. A vaginal vulcanite electrode with a rounded metallic end about an inch and a half long is inserted, so that the metal is in contact with the cervix and the upper end of the vagina. The other electrode consists of a lead belt around the pelvis. Two amperes of current are used, and this gives a temperature of about 106° F. in the neighborhood of the electrode, when the patient's temperature is normal.

The treatments are given twice a week, and from four to eight are usually sufficient. During this time the subjective symptoms may completely disappear and the cervicitis diminish, but unless the cervical infection is removed, relapse occurs. Direct application to the cervix by the second procedure is therefore subsequently undertaken.

Influence of Heat and Cold on Blood Sugar. Abst. in Jour. A. M. A., 97:19:1423, Nov. 7, 1931, from Wiener Archiv fur Innere Medizin, Vienna, 21:395, (July 15) 1931.

Loebel observed that heat in the form of hot baths or of incandescent light baths as a rule influences neither the blood sugar while a person is fasting nor the alimentary hyperglycemia. Occasionally the sugar tolerance is slightly decreased. The formerly generally accepted opinion that heat effects a reduction in the blood sugar content has already been disproved in animal

experiments, and it is now no longer tenable for human subjects. The effect of cool baths becomes manifest in an increased sugar content not only while the person is still fasting but also in a more marked alimentary hyperglycemia. This increase in the blood sugar following cold baths is considered by the author to be the result of an impairment of the peripheral circulation.

High Body Temperature in Relation to Wassermann-Fast Neurosyphilis. Lee D. Cady, M. D., and F. H. Ewerhardt, M. D., Departments of Neurology and Physical Therapy, Barnes Hospital, Washington University School of Medicine, St. Louis, Mo., in Arch. Physical Therapy, XII:10:605, Oct. 1931.

Thirteen patients were treated and all but two of them were Wassermann-Fast neurosyphilic. One showed Wassermann-fast congential syphilis and one was an early case with mild arsenic intolerance. The Wassermann-Fast patients had shown no clinical evidence of active syphilis for at least two years.

In summarizing the serological results of the above cases it is found that eleven of the cases had some reduction in the serological relapses. Only one patient showed no change. Twelve of the patients were Wassermann-Fast and one was mildly intolerant to arsenicals. The remarkable thing about this patient is that after only two very cautious courses of arsenicals and hot baths his blood and spinal fluid have shown no signs of relapse during two years observation. This patient is very fortunate.

CONCLUSION

High body temperature induced by hot baths is definitely not harmful to the syphilitic patient and usually exert a beneficial clinical effect. In Wassermann-Fast patients it tends to cause reductions in their serological reactions when used in conjunction with drug therapy.

Fever by Diathermy in the Treatment of Allergic Disease. Samuel M. Feinberg, M. D., S. L. Osborne, B. P. E., and M. L Afremow, M. D., Chicago, in Jour. Allergy 11:6:414, September 1931.

We have repeatedly observed that acute infectious diseases frequently checked temporarily the symptoms of allergic disease, such as asthma, and hay fever. This is especially true if the infection occurs outside of the respiratory tract. Although the literature contains surprisingly little to substantiate that observation, it is undoubtedly a common experience. For several years we have believed that anything that would similate acute febrile disease might produce the same result. In our search of such a method we considered the various modes of non-specific therapy in vogue, such as ordinary vaccines, typhoid vaccine, colon bacillus vaccines, peptone and milk injections. These probably owe their usefulness to their property of producing fever. To this end one must resort usually to intravenous injections of proteins with their accompanying danger, particularly in the allergic case. Repeated reports of serious reactions and fatalities from the injection of foreign proteins in allergic persons led us to believe that such methods would not be suitable for our purpose. We also considered the advisability of the use of hot baths for the production of fever, as used by Mehrtens and Pouppirt in general paresis and other conditions. We were dissuaded, however, from using this form of treatment because the authors themselves considered it dangerous and impractical.

It should be emphasized at this point that in speaking of diathermy for the production of fever, we have no reference to the usual diathermy methods used for several years in the treatment of asthma, such as that described by Gassul and others. Diathermy with electrodes over the spleen or chest does not produce any appreciable rise in body temperature; as a matter of fact, in our experience such treatment does not give any relief.

After each treatment it is necessary to hospitalize the patient for twenty-four hours. The meal preceding the treatment should be very light and consist principally of fluids. A full meal tends to make the patient quite uncomfortable. During the fever fluids should be given freely. This may consist of plain cold water or may take the form of lemonade or orangeade. The free use of fluids has apparently very little effect on the temperature, while the withholding of it may make the patient extremely uncomfortable and ill. If an attack of asthma supervenes, adrenalin may be used. When the required fever period is drawing to a close and the patient's temperature has not dropped to 100° F., several of the blankets are removed in order to cool him off more rapidly. It may be necessary at this point to remove the blankets and even the jacket and electrodes. It is important at this time to take care that no drafts are present. When the temperature has reached 100° F., a sponge bath is given and the bed is freshly prepared. A full diet is in order from then on, unless special conditions contraindicate it. The next morning the patient may be out of bed and may leave the hospital if necessary.

In general the reactions to this form of diathermy treatment are the same as those associated with fevers of infectious origin. However, due to the fact that the temperature rises more rapidly than in infections, thus giving the physiologic mechanisms less time for adjustment, the reactions may be more marked. At about 102° F., the patient is quite restless. This restlessness often becomes lessened when higher temperatures are reached. At the height of the fever the pulse rate may range from 100 to 160, but is most frequently around 130. The blood pressure shows a tendency for increased pulse pressure, due mainly to a definite decrease of diastolic pressure. Usually there is profuse perspiration, especially during the first part of the treatment. It has been noted that when the perspiration ceases or diminishes markedly, the patient is very uncomfortable and restless. The respiratory rate is moderately increased. During the height of the fever the patient usually complains of weakness. Nausea is present at times. Occasionally there are other nervous phenomena, such as numbness of the extremities or muscle spasms.

We have thus far treated seventeen asthmatic patients. Of this number one had one treatment (one-half course), and we have not heard from him, and another had one treatment without benefit. Four patients have been treated very recently so that the results cannot be ascertained as yet, although they seem encouraging. Four patients with only slight complications were totally relieved. One has been relieved for three months and is still asthma free; one had a slight recurrence after one month's freedom; a third has been relieved for over seven weeks without recurrence, and the fourth has been recently relieved. The remaining patients have had some measure of relief, either in the severity of the asthma or in the number of attacks.

The improvement most frequently begins on the second or third day after treatment, but in many instances the effect was noticeable the same day. Frequently the patient began the treatment with wheezing, which disappeared as the treatment progressed.

There is no doubt that fever treatment by diathermy as here described is capable of giving benefit to some sufferers from asthma. Disadvantages to this form of treatment are its expense due to over-night hospitalization, discomfort to the patient, the time consuming element to the operator, the comparatively temporary nature of the relief, and the incomplete knowledge of the limitation of its uses. We are attempting to overcome some of these difficulties by experimenting with variations in technic and other observations. It must be emphasized at this point that it is necessary to use caution in the selection of cases for this treatment. The treatment is strenuous and apparently places a temporary burden on the heart. It is necessary to make careful preliminary studies on the patient before such treatment is undertaken. Furthermore, we have thought it best, at least for the present, to limit this treatment to those persons who have resisted all ordinary forms of treatment. We are also investigating the use of this form of therapy in other allergies, such as hay fever, hyperesthetic rhinitis and urticaria.

At this time we have no intention of entering into a discussion of the mechanisms involved in the production of relief by this fever therapy. However, our experiments thus far lead us to believe that it lies neither in a change in the acid-base balance of the blood nor in the sensitiveness of the patient to the allergen, at least as far as skin sensitivity is concerned, neither does it depend upon any decided changes in reagins. Developments in future experiments may possibly furnish us with a clue for this interesting phenomenon.

Fever by diathermy is presented as a method of non-specific treatment of allergic disease. An number of severe asthmatic patients treated by this method gave results which are regarded as highly encouraging. The fact is stressed that a careful study of the individual case will have to be made before such treatment may be considered either necessary, advisable or safe.

Council on Physical Therapy. In Jour. A. M. A., 97: 19:1385, Nov. 7, 1931, The Council on Physical Therapy of the American Medical Association has authorized Publication of the following report.

H. A. Carter, Secretary.

Schellberg Apparatus for Colonic Therapy Not Acceptable.

Council of Physical Therapy. In Jour. A. M. A. 97: 20:1466, Nov. 14, 1931, The Council on Physical Theraphy of the American Medical Association has authorized publication of the following report.

H. A. Carter, Secretary.

HEALTH BUILDER NOT ACCEPTARLE

The Council on Physical Therapy of the American Medical Association declares the Health Builder unacceptable for inclusion in its list of accepted devices for physical therapy because:

Rule 5. The firm advertises claims that are misleading, exaggerated or unwarranted.

Rule 6. The firm's advertising and descriptive matter fails to give adequate warning of the dangers associated with its use.

Rule 8. The firm uses an objectionable name for the apparatus.

Index to Current Literature

APPARATUS

Council on Physical Therapy. In Jour. A. M. A. 97:20:1466, Nov. 14, 1931.

ELECTRICITY

Treatment of Poliomyelitis. Abst. in Jour. A. M. A., 97:15:1112, Oct. 10, 1931, from J. de radiol. et d'electrol., 15:321, July, 1931.

Effect of Hyperthermia on Asthmatic Crises. Abst. in Jour. A. M. A., 97:15:1112, Oct. 10, 1931, from Bull. et Mem. de la Soc. Med. des Hopitaux de Paris, 47:1046, June 22, 1931.

Electrocoagulation in Cancer of Skin and Mucous Membranes. Abst. in Jour. A. M. A., 97:14:1044, Oct. 3, 1931, from Vestnik Roetgen. i radiol., 9:39, 1931

Report of a Stubborn Case of Actinomycosis Cleared Up by Electro-Coagulation. By LEWIS J. SILVERS, M. D., New York, N. Y., in N. Y. State Jour. of Med., 31:18:1162, September 15, 1931.

Recent Advances in the Diagnosis and Treatment of Chronic Diseases of the Nose and Throat. By GEORGE L. TOBEY, Jr. M. D., Boston, Mass., Read at the Annual Meeting of the Medical Society of the State of New York, at Syracuse, N. Y., June 2, 1931, in New York State Jour. of Med., 31:18:1149-50-51, September 15, 1931.

The Fever Treatment of Paresis by Means of the Diathermy Current and the Electric Blanket. SIDNEY D. WILGUS, M. D., and LEAH LURIE, M. D., Elgin, Illinois, in Ill. Med. Jour., LX:4:341-344, October, 1931.

SYPHILIS—the Treatment of Wassermann-Fast and Cerebrospinal by Modern Methods. By JAMES E. POTTER, M. D., San Francisco, in California & West. Med., XXXV:2:97, August, 1931.

Influence of Artificial Fever on the Course of Experimental Poliomyelitis. CLAUS W. JUNGEBLUT AND NICHOLAS KOPELOFF, New York, in Jour. Infectious Dis., 49:4:348, October, 1931.

Diathermy in Urinary Surgery. ARTHUR JACOBS, F. R. F. P. S., Urologist to the Glasgow Royal Infirmary, in the Practitioner, CXXVII:3:359, September, 1931.

Hyperpyrexia, A New Field for Physical Therapeutics. CLARENCE A. NEYMAN, A. B., M. D., Associate Professor of psychiatry, Northwestern University Medical School, Chicago, U. S. A., in British J. Phys. Med., vi:7:141, October, 1931.

Zinc Ionization Treatment of Chronic and Subacute Purulent Otitis Media. Presented before the Colorado Congress of Ophthalmoloty and Oto-Laryngology by JOHN G. MCLAURIN, Dallas, Texas, in The Physiotherapy Review, XI:5:190, September-October, 1931.

The Evolution and Present Status of Electrosurgery in the Treatment of Cancer. By GEORGE A. WYETY, M. D., New York, in Radioloty, XVII:5:1028, November, 1931.

Chronic Tonsilitis and Its Surgical Treatment. R. GRAHAM BROWN, F. R. A. C. S., Brisbane, in Med. J. Australia II:15:444, October 10, 1931.

Backache and Cervical Infection. C. A. ROBINSON, M. B., in Proc. Royal Sec. Med., XXIV:11:1505, September, 1931.

Postoperative Gangrenous Ulcer of the Abdominal Wall. By FRANK S. LYNN, M. D., Baltimore, in Jour. A. M. A., 97:22:1597, November 28, 1931.

Evolution of Electrosurgery. Abst. in Jour. A. M. A., 97:22:1652, November, 28, 1931, from Physical Therapeutics, Elmira, N. Y., 49:367, October, 1931.

Hepatic Hemostasis. Abst. in Jour. A. M. A., 97:17:1261, Oct. 24, 1931, from Ann. ital. di chir. Naples, 10:913, (Aug. 31) 1931.

Diathermy in Inflammation of Pelvic Region and Mammary Glands. Abst. in Jour. A. M. A., 97:17:1260, Oct 24, 1931, from Press. Medicale, Paris, 39:1214, (Aug. 15) 1931.

Fever by Diathermy. Abst. in Jour. A. M. A., 97:21:1566, Nov. 21, 1931, from Jour. of Allergy, St. Louis, 2:414, September, 1931.

Electric Ionization in Oto-Rhinology. By DR. GORDON J. MCCURDY, 122 Waterman Street, Providence, R. I., in Rhode Island M. J., XIV:10:151, October, 1931.

The Treatment of Epitheliomas by Physical Methods. ALBERT F. TYLER, B. Sc., M. D., Omaha, Nebraska, in Nebraska N. J., XVI:11:417, November, 1931.

Tonsillectomy by Diathermy. A. S. V. GIGLIO, M. D., Elizabeth, N J., in J. M Soc., New Jersey, XXVIII:10:771, October, 1931.

Electro-Surgery with Special Reference to Goitre and Malignancy. By MARTIN B. TINKER, M. D., of Ithaca, New York, in Ann. Surg., XCIV:4:587, October, 1931.

Healing of Wounds Following Operation by Means of High Frequency Current. Abst. in Jour. A. M. A., 97:20:1499, Nov. 14, 1931, from Beitr. z. klin. Chir., 153:257 (Aug. 22), 1931.

Surgery with High Frequency Current. Abst. in Jour. A. M. A., 97:20:1499, Nov. 14, 1931, from Beitr. z. klin. Chir., 153:161 (Aug. 22), 1931.

A Few Remarks About the Treatment of Rhinophyma. ALBERIC MARIN, M. D., Dermatologist to the Notre Dame Hospital, Montreal; in Can. Med. Assoc. Jour., XXV:5:589, November, 1931.

Acute and Chronic Otitis Media and Sinus Thrombosis. SAMUEL J. KOPETZKY, M. D., New York in Arch. Otol., 14:4:489, October, 1931.

Physical Treatment of Prostatic Lesions. EDWARD CODDINGTON TITUS, M. D., AND VICTOR PEDERSEN, M. D., F. A. C. S., New York, in The Lancet, London, II:XV:788, October 10, 1931.

Fever by Diathermy in the Treatment of Allergic Disease. SAMUEL M. FEINBERG, M. D., S. L. OSBORNE, B. P. E., and M. D. AFREMOW, M. D., Chicago, in Jour. Allergy, II:6:414, September, 1931.

Prevention and Treatment of the Deformities in Anterior Poliomyelitis. JACOB GROSSMAN, M. D., Chief of the Orthopedic Clinic, Lebanon Hospital; attending Orthopedic Surgeon, Shield of David Orphan Asylum, New York, N. Y., in Med. Times & Long Island Med. Jour., LIX:10:341, October, 1931.

Modern Methods in the Treatment of Chronic Rheumatism. MATTHEW S. RAY, B. S. O., M. D., in the Practitioner, CXXVII:5:517, November, 1931.

Physical Therapy in Infantile Paralysis. By RICHARD KOVACS, M. D., New York, in New York State J. Med., 31:17:1078, September 1, 1931.

The Organization of Treatment for Infantile Paralysis. G. MURRAY LEVICK, M. R. C. S., L. R. C. P., in British M. J., No. 3692:652, Oct. 10, 1931.

EXERCISE

Physical Exercise Discussion in Meeting of the Societa Di Cultura Medica. Jour. A. M. A., 97:11:794, Sept. 12, 1931.

Effects of Posture. Abst. in Jour. A. M. A., 97:11:806, Sept. 12, 1931, from Am. Rev. Tuberc., Baltimore, 24:57, July, 1931.

Fractures of the Ankle. M. S. HENDERSON, M. D., in Proc. Staff Meeting Mayo Clinic 6:41:601, Oct. 14, 1931.

The Treatment of Poliomyelitis. JOHN FUHRAH, M. D., Baltimore, in Jour. A. M. A., 97:17:1224, Oct. 24, 1931.

Constipation. HILTON S. READ, M. D., Atlantic City, N. J., in J. M. Soc. New Jersey, XXVIII:10:755, October, 1931.

Traumatic Disability of the Shoulder. By GEORGE A. RAMSAY, M. D., Department of Surgery, University of Western Ontario, London, Ont., in Canad. M. A. J., XXV:5:566, November, 1931.

Low Back Pain in Gynecologic Practice Due to Lumbosacral and Sacro-Iliac Strain. W. A. COCHRANE, F. R. C. S. E., Hon. Assist. Surgeon, Royal Infirmary, Edinburgh: in the Jour. Obst. and Gynec. of the British Empire, 38:3:538, autumn of 1931.

Physical Agents in the Treatment and Prevention of Pulmonary Tuberculosis. J. BROWNING ALEXANDER, M. D., M. R. C. P.,

Senior Physician Prince of Wales General Hospital; Physician, City of London Hospital for Diseases of the Heart and Lungs; Physician St. Mark's Hospital; in British J. Physical Med., VI:8:165, November, 1931.

Fractures of the Foot and Ankle. C. O. EPLEY, M. D., Spirit Lake, in J. Iowa M. Soc., XXI:10:540, October, 1931.

Prevention and Treatment of the Deformities in Anterior Poliomyelitis. JACOB GROSSMAN, M. D., Chief of the Orthopedic Hospital; attending Orthopedic Surgeon, Shield of David Orphan Asylum, New York, N. Y., in Med. Times & Long Island Med. Jour., LIX:10:341, October, 1931.

Physical Therapy in Infantile Paralysis. By RICHARD KOVACS, M. D., New York, in New York State M. Med., 31:17:1078, Sept. 1, 1931.

HEAT

Effect of Infra-Red Rays on Menstruation. Queries and Minor Notes, Jour. A. M. A., 97:14:1022, Oct. 3, 1931.

Heat in Treatment of Pelvic Disorders. Abst. in Jour. A. M. A., 97:13:958, Sept. 26, 1931, from Am. J. Obst. & Gynec., 22:89, July, 1931.

The Cure of Infantile Rickets with Tungsten-Filament Radiation. HENRY J. GERSTENBERGER, M. D., and ARTHUR J. HORESH, M. D., Cleveland, in the Jour. of the Amer. Med. Assn., 97:11:766, September 12, 1931.

The Fever Treatment of Paresis by Means of the Diathermy Current and the Electric Blanket. Read before the Section of Public Health and Hygiene, Illinois State Medical Society, May 6, 1931, East St. Louis. From Elgin State Hospital and The Illinois State Psychopathic Institute, SIDNEY D. WILGUS, M. D., and LEAH LURIE, M. D., Elgin, Ill., in Illinois M. M., LX:4:341, October, 1931.

Influence of Heat and Cold on Blood Sugar. Abst. in Jour. A. M. A., 97:19:1423, Nov. 7, 1931, from Wiener Archiv fur Innere Medizin, Vienna, 21:395, (July 15) 1931.

High Body Temperature in Relation to Wassermann-Fast Neurosyphilis. LEE D. CADY, M. D., and F. H. EWERHARDT, M. D., Departments of Neurology and Physical Therapy, Barnes Hospital, Washington University School of Medicine, St. Louis, Mo., in Arch. Physical Therapy, XXI:10:605, Oct. 1931.

Modern Methods of the Treatment of Chronic Rheumatism. MATTHEW B. RAY, B. S. O., M. D., Senior Officer to the British Red Cross Clinic for Rheumatism; Honorary Officer to the Marylebone Dispensary; in The Practitioner, CXXVII:5:517, November, 1931.

HOSPITAL DEPARTMENT

A New Wing of the Hotel Dieu, Kingston, A Model of Hospital Contruction. By MARY L. BURCHER, B. A., in The Canadian Hospital, 8:11:14, Nov. 1931.

Physical Therapy in a Modern Hospital. ROBERT DWIGHT BROWN, M. D., in Hosp. Progr., XII:10:452, Oct. 1931.

HYDROGYMNASTICS

Gonorrhea in the Female. By A. V. PETTIT, M. D., San Francisco, in California & West. Med., XXXV:2:103, August, 1931.

Underwater Gymnastics. C. L. LOWMAN, M. D., Los Angeles, in The Jour. of the Amer. Med. Ass'n., 97:15:1074, Oct. 10, 1931.

The Treatment of Poliomyelitis. JOHN RUHRAH, M. D., Baltimore, in Jour. A. M. A., 97:17:1224, Oct. 24, 1931.

Modern Methods in the Treatment of Chronic Rheumatism. MATTHEW B. RAY, B. S. O., M D., Senior Officer to the British Red Cross Clinic for Rheumatism; Honorary Officer to the Marylebone Dispensary; in The Practitioner, CXXVII: 5:517, Nov. 1931.

Physical Therapy in Infantile Paralysis. By RICHARD KOVACS, M. D., New York, in New York State J. Med., 31:17:1078, Sept. 1, 1931.

MASSAGE

Fractures of the Foot and Ankle. C. O. EPLEY, M. D., Spirit Lake, in J. Iowa M. Soc., XXI:10:540, Oct. 1931.

Prevention and Treatment of the Deformities in Anterior Poliomyelitis. JACOB GROSSMAN, M. D., Chief of the Orthopedic Clinic, Lebanon Hospital; attending Orthopedic Surgeon, Shield of David Orphan Asylum, New York, N. Y., in Med. Times & Long Island Med. Jour., LIX:10:341, Oct. 1931.

The Treatment of Poliomyelitis. JOHN RUHRAH, M. D., Baltimore, in Jour. A. M. A., 97:17:1224, Oct. 24, 1931.

Physical Therapy in Infantile Paralysis. By RICHARD KOVACS, M. D., New York, in New York State J. Med., 31:17:1078, Sept. 1, 1931.

NATURAL AND ARTIFICIAL RADIATION

Psoriasis. Abst. in Jour. A. M. A., 97:19:1412, Nov. 7, 1931, from Archives of Dermat & Syph., 24:446, (Sept.) 1931.

The Effect of Viosterol (Irradiated Ergosterol) on Calcification in Pulmonary Tuberculosis. JACOB KAMINSKY AND DORIS L. DAVIDSON in The Amer. Rev. Tuberculosis, XXIV:4:483, Oct. 1931.

Ultraviolet Irradiation in the Prevention of Tuberculosis. C. H. C. TOUSSAINT, M. R. S. C., L. R. C. P., D. P. H., Deputy medical officer of health and clinical tuberculosis officer, Borough of Bermondsey; and E. J. MACINTYRE, M. B., Ch. B., D. P. H., Assistant Medical Officer of Health and Assistant Tuberculosis Officer, Borough of Bermondsey, in British J. Physical Med., VI:8:167, Nov. 1931.

Actinotherapy and the Public. Abst. in Jour. A. M. A., 97:22: 1652, Nov. 28, 1931, from Physical Therapeutics, Elmira, N. Y., 49:380, Oct. 1931.

Sunburn: Treatment with Rays of Long Wavelength. Abst. in Jour. A. M. A., 97:18:1340, Oct. 31, 1931, from Schweiz, Med. Wchnschr., Basel, 61:770, (Aug. 8), 1931.

Bone and Joint Tuberculosis in Children. Clinic, THEODORE TOEPEL, M. D., Atlanta, in J. M. A., Georgia, XX:11:417, Nov. 1931.

The Effects of Ultraviolet Irradiation on the Reducing Power of Blood. By L. M. DILLMAN, Chicago, Ill., from the Department of Physiology, University of Illinois, College of Medicine, Chicago, in J. Lab. & Clinl. Med., XVII:1:44, Oct. 1931.

The Present Status of the Treatment of Tuberculosis of the Cervical Lymph-Nodes. By RICHARD H. MILLER, M. D., of Boston, Mass., in Ann. Surg., XCIV:4:539, Oct. 1931.

The Antirachitic Effect of Sunshine. Current Comment Sec., in Jour. A. M. A., 97:19:1390, Nov. 7, 1931.

Effects of Ultraviolet Rays, Radium and X-Rays on Proteins. MONA SPIEGEL-ADOLF, M. D., Vienna, Austria and Philadelphia, in Arch. Pathol., 13:4:533, Oct. 1931.

Flexural Eczema: A Subgroup of Infantile Eczema. HERMAN GOODMAN, M. D., and MARJORIE BURR, B. S., New York, in Arch. Pediatrics, XLVIII:10:658, Oct. 1931.

Seasonal Variation in the Antirachitic Effect of Sunshine. FREDERICK F. TISDALL, M. D., and ALAN BROWN, M. D., Toronto, Canada, in Amer. J. Dis. Child., 42:5:1144, Nov. 1931.

Prophylaxis of Rickets with Irradiated Milk. Abst. in Jour. A. M. A., 97:11:819, Sept. 12, 1931, from Wiener Klinische Wochenschrift, 44:765, June 12, 1931.

Influence of Ultraviolet Rays on Schick Reaction. Abst. in Jour. A. M. A., 97:13:964, Sept. 26, 1931, from Pediatria, Naples, 39:569, June 1, 1931.

Lupus Vulgaris Treated with New Finsen Lamp. Abst. in Jour. A. M. A., 97:14:1044, Oct. 3, 1931, from Ugesk. f. laeger, Copenhagen, 93:693, June 18, 1931.

The Relationship of Type of Radiant Energy to Its Activation of Vitamins in Yeast. By LOUIS H. JORSTAD, M. D., St. Louis, Mo., in The Jour. of Lab. & Clin. Med., XVI:12:1169, Sept. 1931.

Physical Agents in the Treatment and Prevention of Pulmonary Tuberculosis. J. BROWNING ALEXANDER, M. D., M. R. C. P., Senior Physician Prince of Wales General Hospital; Physician, City of London Hospital for Diseases of the Heart and Lungs; Physician St. Mark's Hospital; in British J. Physical Med., VI:8:165, Nov. 1931.

The Organization of Treatment for Infantile Paralysis. G. MURRAY LEVICK, M. R. C. S., L. R. C. P., Consultant for physical treatment, East Sussex, C. C.; Medical Director, Heritage Craft Schools; Physician Victory Hospital for Children; in British M. J., No. 3692:652, Oct. 10, 1931.

OCCUPATIONAL THERAPY

Occupational Therapy at the Los Angeles County Farm. By JAMES A. COLBATY, Occupational Therapist, in West M. Rev., XVIII:3:21, Nov. 1931.

Physical Agents in the Treatment and Prevention of Pulmonary Tuberculosis. J. BROWNING ALEXANDER, M. D., M. R. C. P., Senior Physician Prince of Wales General Hospital; Physician, City of London Hospital for Diseases of the Heart and Lungs; Physician St. Mark's Hospital; in British J. Physical Med., VI:8:165, Nov. 1931.

SPLINTS

A Splint to Prevent Toe Drop in Poliomyelitis. By T. WOOD CLARKE, M. D., Utica, New York, In New York State J. Med., 31:21:1317, Nov. 1, 1931.

PHYSIOTHERAPY COURSES

New Haven School of Physical Therapy

303 WHITNEY AVENUE — NEW HAVEN, CONN.

Fourteenth Year, 1932-1933

Technicians This school offers a school year course, under medical direction, preparatory to high grade positions as physiotherapy technicians. Regular faculty of eleven physicians. Lectures by noted American and foreign specialists. The course is comprehensive in theory and practice of all phases of physical therapeutics. The school maintains its own completely equipped practice clinic. **Requirements** Graduation from physical education, nursing or college for entrance to regular course starting Oct. 4, 1932. Preparatory course for non-graduates with high school, or equivalent, qualifies for regular course. Post-graduate course of one year, diploma representing two years, instituted fall of 1927. **Physicians** Special short courses are arranged for graduates in medicine.

Catalog sent on application to HARRY EATON STEWART, M. D., Director, 303 Whitney Ave., New Haven, Conn.

COURSE IN PHYSIOTHERAPY

OCT. 1, 1931 - JUNE 1, 1932

An Eight Months' Thorough Course in Massage,

Electro- Mechano- Hydro- and Thermotherapy

Excellent opportunity for Clinical and Bed-Side Practice.

Prepares for Pennsylvania State Board Examinations.

Circulars on Request

Philadelphia Orthopedic Hospital

and

Infirmary for Nervous Diseases

17th and Summer Streets — **Philadelphia, Pa.**

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL

CHICAGO, ILLINOIS

PHYSICAL THERAPY COURSE

This course, designed for Graduates of Physical Education and Graduate Nurses, will be given at the Northwestern University Medical School and in affiliated hospitals from October 3, 1932, to June 11, 1933

Credit toward a degree will be granted for this course in the School of Education of Northwestern University.

Special emphasis will be placed on Physiology, Pathology and Anatomy, in which there will be lectures, dissection and quizzes. Special instruction and many hours of practical work will be given in Massage, Muscle Training and Corrective Exercise, especially in the treatment of the various forms of paralysis, spinal curvatures, faulty postures, fractures and industrial injuries. Instruction and practical work will also be given in Electrotherapy, Natural and Artificial Radiation, Hydrotherapy, Occupational Therapy, Physical Therapy Department Administration, and Administration of work for the handicapped.

The course will be under the direction of John S. Coulter, M. D., Assistant Professor of Physical Therapy, and Miss Gertrude Beard, R. N.

Application should be made to the

Dean of Northwestern University Medical School, 303 East Chicago Avenue, Chicago, Illinois